

B. 5. 27.

23 N. Harbri Bay



101



ANECDOTES
OF
THE ANIMAL KINGDOM;
CONTAINING
ILLUSTRATIONS OF THE CHARACTERS, HABITS,
DISPOSITIONS, AND CAPABILITIES,
OF
QUADRUPEDS, BIRDS, FISHES, REPTILES, AND INSECTS ;
AND FORMING AN
APPROPRIATE SUPPLEMENT
TO
GOLDSMITH'S ANIMATED NATURE.

By CAPTAIN THOMAS BROWN,
FELLOW OF THE LINNEAN SOCIETY, MEMBER OF THE WERNERIAN, KIRWANIAN
AND PHRENOLOGICAL SOCIETIES, AND LATE PRESIDENT OF THE ROYAL
PHYSICAL SOCIETY, &c. &c. &c.

GLASGOW:
ARCHIBALD FULLARTON & CO.,
34, HUTCHESON STREET, AND 31, SOUTH BRIDGE, EDINBURGH ;
W. CURRY, JUN. & CO. DUBLIN ;
SIMPKIN & MARSHALL, AND ORR & SMITH, LONDON.

MDCCCXXXIV.

1834

1870

THE ALEXANDER & CO. LTD.

PRINTERS AND PUBLISHERS

10, NASSAU STREET, LONDON, E.C.4.

THE ALEXANDER & CO. LTD.

PRINTERS AND PUBLISHERS

10, NASSAU STREET, LONDON, E.C.4.

THE ALEXANDER & CO. LTD.

GLASGOW:
FULLARTON AND CO., PRINTERS, VILLAFIELD.

PREFACE.

THIS Volume, which consists of Illustrative ANECDOTES OF ANIMALS, is intended to form a supplement to the Edition of Goldsmith lately issued under the superintendence of the present Editor. Numerous and extensive as the Notes appended to that Edition were, it was found impossible to embrace in their plan the wide field of Anecdote connected with the Animal Kingdom,—the first and great object of the Editor being to make such corrections and additions to the work as were called for by the many discoveries and improvements that have taken place in the science since the days of Goldsmith. To accomplish this object in a satisfactory manner required all the bounds which the prescribed limits of the publication afforded; and, accordingly, the Editor, in his appended Notes, refrained from indulging in illustrative Anecdotes, except when they were found necessary to prove or confirm a position. But by gathering together, as he has here done, in one volume, and in one connected view, all the best anecdotes regarding animals which he could collect from authentic sources, or which have come under his own observation, he doubted not of making an interesting and acceptable addition to Goldsmith; for, as much of the charm of Political History arises from the personal biographies which it embraces, so much of the attraction of Natural History consists in the individual illustrations of instinct which it furnishes.

Many of the Anecdotes here given are original, or derived from private sources; and of those selected, care has been taken that they should be well authenticated, or that they should, in reality, be worth repeating. They are arranged in

accordance with the system pursued by Goldsmith ; but in all other respects, this volume is entirely independent of the others, and may be purchased and read separately. The Anecdotes, as will be seen, are not confined to those animals with which we are all familiar, as the generous horse, the confiding dog, or the jealous cat, but embrace nearly every living creature of whom we have any account—"the beast of the field, the fowl of the air, the fish of the sea, and every creeping thing that creepeth upon the earth." From the comprehensive character of the type employed on this work, the Editor has been enabled to lay before the reader a store of Anecdotes regarding animals more extensive than is to be found in any other single publication ; and altogether, he ventures to hope, that this volume has peculiar claims on the attention of the lover of Natural History, and of those who, "looking from Nature unto Nature's God," acknowledge a sympathy with every creature that breathes the breath of life.

Natural History is not only the most captivating of the sciences, but it is also the most humanizing. It is impossible to study the character and habits of the lower animals, without imbibing an interest in their wants and feelings. "To obtain the regards of man's heart," says Dr Chalmers, "in behalf of the lower animals, we should strive to draw the regards of his mind towards them. We should avail ourselves of the close alliance that obtains between the regards of his attention and those of his sympathy. The beasts of the field are not so many automata without sensation, and just so constructed as to give forth all the natural signs and expressions of it. Nature hath not practised this universal deception upon our species. These poor animals just look, and tremble, and give forth the very indications of suffering that we do. Theirs is the distinct cry of pain. They put on the same aspect of terror on the demonstration of a menaced blow. They exhibit the same distortions of agony after the infliction of it. The bruise, or the burn, or the fracture, or the deep incision, or the fierce encounter

with one of equal or superior strength, just affects them similarly to ourselves. Their blood circulates as ours. They have pulsations in various parts of the body like ours. They sicken, and they grow feeble with age, and, finally, they die just as we do. They possess the same feelings; and what exposes them to like suffering from another quarter, they possess the same instincts with our own species. The lioness robbed of her whelps causes the wilderness to ring aloud with the proclamation of her wrongs; or the bird whose little household has been stolen, fills and saddens all the grove with melodies of deepest pathos. All this is palpable even to the general and unlearned eye; and when the physiologist lays open the recesses of their system by means of the scalpel, under whose operation they just shrink, and are convulsed as any living subject of our own species, there stands forth to view the same sentient apparatus, and furnished with the same conductors for the transmission of feeling to every minutest pore upon the surface. Theirs is unmingled and unmitigated pain—the agonies of martyrdom, without the alleviation of the hopes and the sentiments whereof they are incapable. When they lay them down to die, their only fellowship is with suffering; for in the prison-house of their beset and bounded faculties, there can no relief be afforded by communion with other interests or other things. The attention does not lighten their distress as it does that of man, by carrying off his spirit from that existing pungency and pressure which might else be overwhelming. There is but room in their mysterious economy for one inmate; and that is, the absorbing sense of their own single and concentrated anguish. And so in that bed of torment, whereon the wounded animal lingers and expires, there is an unexplored depth and intensity of suffering which the poor dumb animal itself cannot tell, and against which it can offer no remonstrance; an untold and unknown amount of wretchedness, of which no articulate voice gives utterance. But there is an eloquence in its silence; and the very shroud which disguises it only serves to aggravate its horrors.”

“ To secure your kindness to the brute creation,” continues the same eloquent writer, “ I would bid you think of all that fond and pleasing imagery, which is associated with the lower animals, when they become the objects of a benevolent care, which at length ripens into a strong and cherished affection for them—as when the worn-out hunter is permitted to graze and be still the favourite of all the domestics through the remainder of his life ; or the old and shaggy house-dog, that has now ceased to be serviceable, is nevertheless sure of its regular meals and a decent funeral ; or when an adopted inmate of the household is claimed as property, or as the object of decided partiality, by some one or other of the children; or, finally, when in the warmth and comfort of the evening fire, one or more of these home animals take their part in the living group that is around it, and their very presence serves to complete the picture of a blissful and smiling family. Such relationships with the inferior creatures supply many of our finest associations of tenderness, and give, even to the heart of man, some of its simplest and sweetest enjoyments. He even can find in these, some compensation for the dread and disquietude wherewith his bosom is agitated amid the fiery conflicts of infuriated men. When he retires from the stormy element of debate, and exchanges, for the vindictive glare, and the hideous discords of that outcry which he encounters among his fellows,—when these are exchanged for the honest welcome and the guileless regards of those creatures who gambol at his feet, he feels that even in the society of the brutes, in whose hearts there is neither care nor controversy, he can surround himself with a better atmosphere far, than that in which he breathes among the companionships of his own species. Here he can rest himself from the fatigues of that moral tempest which has beat upon him so violently ; and in the play of kindliness with these poor irrationals, his spirit can forget for a while all the injustice and ferocity of their boasted lords.”

INDEX

TO THE

CONTENTS OF THE VOLUME.

A	PAGE	ANECDOTES OF THE	PAGE
ANECDOTES OF THE		Bird of Paradise,	503
Adder,	840	Birds,	415
Albatross,	643	Bison,	70
Alligator,	826	Bittern,	623, 624
Amphibious Animals,	307	Bivalve Shells, . .	811
Anaconda,	854	Blackbird,	535
Anchovy,	788	Black-cap,	563
Animalculæ,	921	Black Cock,	465
Ant,	880	Boa Constrictor, . .	845
Antelope,	92	Boar, Wild,	120
Ape,	331	Brambling,	585
Argali,	83	Buffalo,	72
Armadillo,	302	Bull,	56
Ass,	36	Bullfinch,	583
Auk,	658	Buntin,	552
Avoset,	626	Bustard,	463
		Butcher Bird,	441
B		Buzzard,	440
Baboon,	336		
Babyrouessa,	129	C	
Badger,	412	Cachalot,	694
Bantam,	453	Camel,	395
Bat,	303	Camelopard,	390
Bear,	399	Canary,	578
Beaver,	310	Carp,	790
Bee,	864	Cassowary,	419
Beetle,	894	Cat,	131
Beluga,	698	Cetaceous Animals,	686

	PAGE		PAGE
ANECDOTES OF THE		ANECDOTES OF THE	
Chætodon, . . .	736	Dromedary, . . .	395
Chaffinch, . . .	551	Duck, . . .	680
Chama, . . .	812		
Chameleon, . . .	834	E	
Chamois, . . .	89	Eagle, . . .	420
Chimpanse, . . .	325	Earth-worm, . . .	913
Chough, . . .	490	Eels, . . .	753
Civet, . . .	282	Eider Duck, . . .	684
Coaita, . . .	346	Elephant, . . .	358
Cock, . . .	447	Elk, . . .	108
Cocooy, . . .	901	Emu, . . .	418
Cod-fish, . . .	771		
Condor, . . .	427	F	
Conger Eel, . . .	762	Falcon, . . .	432, 434
Coot, . . .	640	Fallow deer, . . .	106
Coral, . . .	916	Ferret, . . .	279
Cormorant, . . .	644	Fieldfare, . . .	537
Corn-crake, . . .	641	Fireflare, . . .	724
Cow, . . .	54	Fish, . . .	707
Crab, . . .	796	Flamingo, . . .	625
Crane, . . .	609	Flounder, . . .	776
Crocodile, . . .	824	Flying fish, . . .	789
Crossbill, . . .	548	Fox, . . .	267
Crow, 479,—Rook, 480,—		Foumart, . . .	280
Hooded Crow, . . .	487	Frogs, . . .	815
Crustaceous Animals, . . .	794	Fury, . . .	911
Cuckoo, . . .	505		
Curlew, . . .	628	G	
D		Ganet, . . .	646
Dace, . . .	791	Gazelle, . . .	91
Deer, . . .	97	Giraffe, . . .	390
Dodo, . . .	419	Glutton, . . .	282
Dog, . . .	214	Goat, . . .	83
Dolphin, . . .	696	Goatsucker, . . .	599
Doree Fish, . . .	744	Goldfinch, . . .	582
Dormouse, . . .	296	Gold-fish, . . .	792
Doterel, . . .	640	Goose, . . .	665, 667
Douroucoulis, . . .	347	Goshawk, . . .	436
Dove, . . .	524	Grampus, . . .	704
		Grebe, . . .	641

	PAGE
ANECDOTES OF THE	
Greenfinch, . . .	548
Grossbeak, . . .	549
Grouse, . . .	465
Guariba, . . .	346
Gudgeon, . . .	731
Guillemot, . . .	660
Guinea Hen, . . .	463
Gull, . . .	650, 652
Gurnards, . . .	742
Gymnotus, . . .	763

H

Haddock, . . .	772
Hair-worm, . . .	912
Hake, . . .	774
Hare, . . .	284
Hawk, . . .	432
Hedgehog, . . .	300
Hen, . . .	449
Heron, . . .	613
Herring, . . .	786
Hippopotamus, . . .	387
Hobby, . . .	435
Hog, . . .	120, 123
Holibut, . . .	776
Horse, . . .	4
Humming Bird, . . .	601
Hyæna, . . .	272

I

Ibex, . . .	89
Ichneumon, . . .	280
Insects, . . .	860, 902
Isatis, . . .	272

J

Jackall, . . .	272
Jackdaw, . . .	488
Jaguar, . . .	198
Jay, . . .	495

ANECDOTES OF THE	PAGE
Jer Falcon, . . .	433

K

Kangaroo, . . .	353
Kestrel, . . .	434
Kingfisher, . . .	684
Kite, . . .	439

L

Lamprey, . . .	725
Land-rail, . . .	641
Lapwing, . . .	637
Lark, . . .	562
Leopard, . . .	203
Ling, . . .	773
Linnet, . . .	584
Lion, . . .	157
Lioness, . . .	183
Lizard, . . .	824
Lobster, . . .	795
Locust, . . .	863

M

Mackerel, . . .	733
Magpie, . . .	492
Martin, . . .	594
Mire Drum, . . .	623
Merlin, . . .	435
Mole, . . .	398
Monkey, . . .	325 and 344
Moth, (Punctured,) . . .	864
Mouse, . . .	295
Mule, . . .	48
Mullets, . . .	751
Multivalve Shells, . . .	813

N

Narwal, . . .	692
Nightingale, . . .	552
Nuthatch, . . .	501

	PAGE		PAGE
O		R	
ANECDOTES OF THE		ANECDOTES OF THE	
Opossum, . . .	353	Raccoon, . . .	413
Orang-Outang, . .	327	Rat, . . .	292
Ostrich, . . .	417	Rattlesnake, . .	841
Otter, . . .	307	Raven, . . .	473
Owzel, . . .	538	Ray Tribe, . . .	717
Owl, . . .	443	Redbreast, . . .	555
P		Redwing, . . .	537
Panther, . . .	203	Reindeer, . . .	112
Parrot, . . .	512	Remora, . . .	777
Partridge, . . .	468	Rhinoceros, . . .	384
Peacock, . . .	453	Ring-Dove, . . .	523
Peccary, . . .	129	Roach, . . .	792
Pelican, . . .	642	Roebuck, . . .	107
Penguin, . . .	658	Rook, . . .	480
Perch, . . .	738	Ruff, . . .	635
Pettrel, . . .	655	S	
Pheasant, . . .	458	Salamander, . . .	828
Pigeon, . . .	522, 524	Salmon, . . .	779
Pike, . . .	782	Sea-fowl, . . .	661
Pilchard, . . .	787	Scallop, . . .	812
Pintado, . . .	463	Seal, . . .	317
Pipit, . . .	577	Serpents, . . .	835
Plover, . . .	638	Shad, . . .	788
Pouched Animals, .	353	Shark, 709,—Basking	
Polecat, . . .	280	Shark, . . .	714
Polypes, . . .	917	Sheep, . . .	75
Porcupine, . . .	301	Shell Fish, . . .	801
Porpoise, . . .	705	Shrike, . . .	441
Poultry, . . .	447	Sirena Lacertina, .	833
Proteus Anguinus, .	830	Siskin, . . .	552
Ptarmigan, . . .	467	Smelt, . . .	781
Puffin, . . .	658	Snails, . . .	807
Puma, . . .	198	Snake, (Black) . .	851
Q		Snipe, . . .	632
Quail, . . .	472	Solan Goose, . . .	646
		Sole, . . .	776
		Solitaire, . . .	419
		Sparrow, . . .	531, 542

	PAGE		PAGE
ANECDOTES OF THE		ANECDOTES OF THE	
Sparrow-hawk, . . .	436	Turkey, . . .	455
Spider, . . .	861		
Spinous Fishes, . .	728	U	
Sponges, . . .	917	Univalve Shells, . .	807
Spoonbill, . . .	625		
Sprat, . . .	788	V	
Squirrel, . . .	289	Vampire, . . .	304
Stag, . . .	97	Vibrio, . . .	922
Starling, . . .	540	Vorticella, . . .	921
Sticklebacks, . . .	745	Vulture, . . .	427
Stoat, . . .	278		
Stock-Dove, . . .	522	W	
Stonechat, . . .	576	Wagtail, . . .	576
Stork, . . .	610	Walrus, . . .	321
Sturgeons, . . .	726	Water-fowl, . . .	642
Surmullet, . . .	740	Waterhen, . . .	640
Surmulot, . . .	292	Water-rail, . . .	641
Swallow, 586, 591, 593,		Weasel, . . .	276
594, 595		Whale, . . .	688
Swan, . . .	665, 666	Ca'ing Whale, . .	701
Swift, . . .	592	Wheat-ear, . . .	552
Sword-fish, . . .	728	Whimbrel, . . .	640
		White-ear, . . .	576
T		Whiting, . . .	773
Tape worm, . . .	908	Wolf, . . .	262
Testaceous Shell Fish, .	801	Woodcock, . . .	629
Thread worms, . . .	909	Woodpecker, . . .	498
Thrush, 531 ;—Song		Worms, . . .	908
Thrush, 532 ;—Missel		Wren, . . .	569, 571, 574
Thrush, . . .	534	Wryneck, . . .	499
Tiger, . . .	187		
Titmouse, . . .	568	Y	
Toad, . . .	819	Yellow Hammer, . .	557
Torpedo, . . .	723		
Tortoise, . . .	798	Z	
Toucan, . . .	497	Zebra, . . .	51
Turnstone, . . .	640	Zebu, . . .	70
		Zoophytes, . . .	916



ANECDOTES OF ANIMALS.

THE sympathy which man has for every object in nature is more particularly called forth by the animated portion of creation. In many of the accidents of their being, the inferior animals present a resemblance of man. They grow to maturity in a period proportioned to their lives; they are moved by affections and antipathies; they are subject to disease and death. The instinct or sagacity with which they are endowed, excites our wonder and admiration, at one time by the force of its operation, at another by the delicacy, the precision, or the beauty of its effects; and in its approaches to reason is the more interesting, that it is separated from it by impassable barriers. Its operations present us with every variety of terrible power and fury, of untameable ferocity, of curious skill, of gentleness, patience and submission to the will of others. But the lower animals are not a mere spectacle to engage our feelings, they are essential to our comfort,—we might almost say, to our existence. The civilization of man begins with the subjugation of the useful, and the extirpation of the noxious and formidable animals. They are associated with man in his most important toils; they minister to his pleasures and his tastes; they adorn the landscape with their beauty, and gladden the air with their song, and generally return with manifold interest the small gratuity of care and nourishment that is expended on them.

The fabulist has given a voice to the tongue of the dumb, and taught them to utter lessons of wisdom. But they speak with sufficient plainness by action,—and who would not be instructed as well as amused, by the striking expression which they give to all their wishes and inclinations,—by their perse-

verance, and the steady regularity with which they fulfil the apparent purposes of their being, and apply their various powers to their several objects? Reason itself may be improved by marking the operations of instinct. The attention will be increased, the observation sharpened by a previous knowledge of the habits of the animal that may be presented to us, and the intelligent mind may thus enjoy a delight from that which would not awaken the ignorant from listless inactivity. The consideration of the habitudes of animated nature is particularly adapted to the opening faculties of the young, but at no period of life does this field of observation lose its freshness; it is ever considered as the inexhaustible repository of what is new and strange, the occupation of the contemplative, the entertainment of an hour when we wish to be profitably amused. It may be added as a happy effect of this species of study, that it is well fitted for promoting kindness of feeling and merciful conduct, toward those animals that are so dependant on man, and often so serviceable. That their habits should be now so favourite a study, we consider a proof not only of the cultivation, but of the humanity of the age; which can never arrive at any approach to perfection, till men have something like sympathy for the condition of those creatures none of which fall to the ground without the permission of their Creator.

It is the object of Natural History to define the distinctions that separate one species from another, and to describe the habits and dispositions that are common to the several classes of animals. This is the work which has been accomplished by Goldsmith, with singular powers of graphic description, with a sustained feeling that is always interesting, and a liveliness of fancy that never ceases to amuse. The information which succeeding philosophers have attained, sometimes correcting, sometimes illustrating that of Goldsmith, and often adding whole branches to his system, will be found in the notes to the present edition of that work. But while the boundaries of the science have been enlarged, its limits more accurately distinguished, and the facts belonging to the system wonderfully increased, there is a species of information connected with it which has in the meantime been amassing, till it has grown into a most interesting and extensive branch of knowledge. This is what we purpose to furnish to our readers in this volume sup-

plemental to the Natural History. It will have respect to such facts as are too circumstantial for a science, or too singular to be affirmed of a class. The anecdotes brought forward may relate to individuals only, or they may discover those traits which the animals exhibit under particular treatment, or in remarkable and uncommon circumstances. They may show the peculiar habits of the animal by striking examples, or furnish instances wherein the qualities common to a species have existed in a very remarkable degree, discovered themselves in laborious or sagacious exertions, or been in any way instrumental to the production of great or unexpected effects. In short, the well-authenticated cases of animals becoming in any way remarkable either from the uncommon exertions of their powers, or from their ordinary habits being in any case marked and described with more than ordinary attention and felicity by a diligent observer, are the subjects that properly fall under our consideration.

In detailing such anecdotes, we shall follow the order which has been already pursued by Goldsmith. The reader will thus be enabled, either to turn readily from the anecdotes related concerning any animal to the history and description of the class to which it belongs, or to obtain illustrations of its history by a reference to the anecdotes. We shall accordingly commence by furnishing some anecdotes of the horse, the animal to which Goldsmith has justly given the first place, as being distinguished above all others, by "its activity, strength, usefulness, and beauty."

THE HORSE KIND.

THE HORSE.

No animal has been for a longer period, or more usefully and extensively associated with man, than the horse. Its services are required at some stage of almost every labour and undertaking. It is alike valuable to every grade of society, at one time for its strength, at another for its incomparable swiftness, and again for its stately beauty. It bears undaunted the warrior to the field; it is an indispensable ornament to his triumph; but it does not disdain to labour for the poor, or to share their utmost hardships. Its nature seems to adapt itself to its employments. It prances proudly in the chariot that rolls along the crowded streets; it flies with a beautiful swiftness along the race course; or it drags the plough obedient to the command of the husbandman, and conveys to the barn the fruits of the earth. It is admirable in all its dispositions and habits. It loves the presence of its master, and moves with a lighter step in the company of one of its own species. Its strong nature requires little repair from sleep, during which it does not generally indulge in a recumbent posture. It is an enemy to no animal, nor ever eats any thing that has possessed life. It is never voracious, and the grass of the field is the nourishment of the animal that would bear comparison with the lion in strength, and with the greyhound in swiftness.

It is not wonderful then that in the earliest records of history* we should find the horse mentioned with honour. In Homer

* For some records of the horse among the Jews and other ancient nations, see Goldsmith, i. 501 n.

he is described in elevated terms, as the offspring of the wind and of celestial influence. The horses of Achilles are thus characterised, and their pedigree declared with a precision that might satisfy even a modern amateur :—

Τῶδε καὶ Αὐτομέδων ὑπαγε ζυγον ὤκτας ἵππους,
Ξάνθον καὶ Βάλιον, τῷ ἅμα πνοίῃσι πέτεσθην·
Τοὺς ἔτικε Ζεφυρῷ ἀνέμῳ Ἄρπυια Πόδαργη
Βοσκομένη λιμνῇ παρὰ ῥοὸν ὤκεανοιο
Ὡς δὲ παρηγορήσιν ἀμύμονα Πηδάσον ἴει,
Τὸν ῥά ποτ' Ἡετιωνὸς ἔλων πολλὴν ἠγάγ' Ἀχιλλεύς·
Ὅς καὶ θνητὸς ἴων, ἔπειθ' ἵπποις ἀθανάτοισι.

IL. XVI. 149.

Then brave Automedon, —
The winged coursers harnessed to the car,
Xanthus and Balius of immortal breed,
Sprung from the wind, and like the wind in speed,
Whom the winged Harpy swift Podarge bore,
By Zephyr pregnant on the breezy shore;
Swift Pegasus was added to their side,
Once great Aetion's, now Achilles' pride,
Who, like in strength, in swiftness, and in grace,
A mortal courser match'd the immortal race.

POPE.

So early had the extraction of the horse become a subject of importance. But the parallel to modern jockeyism will hold farther. Even then the horse was valued not only for his direct services, but also for the sums which he brought to his owner by victory in the chariot-race. We say the chariot-race, for it is worthy of remark, that not a proof can be adduced from Homer, that any of the heroes of the Trojan war ever mounted on horseback. Accordingly Agamemnon endeavours to mollify the rage and command the services of Achilles, by the offer not only of seven cities and twenty-seven handmaids, but stipulates also to furnish the following presents :—

——— δώδεκα δ' ἵππους
Πηγούς, ἀθλοφόρους, οἳ ἀθλία ποσσὶν ἀροντο.
Οὐ κεν ἀλκίος εἴη ἀνὴρ, ᾧ τόσσα γένοιτο,
Οὐδὲ κεν ἀκτῆμων ἐριτίμοιο χρυσοῖο.

IL. IX. 265.

Twelve steeds unmatched in fleetness and in force,
And still victorious in the dusty course;
Rich were the man whose ample stores exceed
The prizes purchased by their winged speed.

POPE.

We shall quote only another of Homer's descriptions of the horse. It paints in animated terms old Nestor's admiration of

the animal in its perfection, and affords a genuine account of the most celebrated of all the Grecian breeds of horses, namely the Thracian, and of the most remarkable specimens of it that came to Troy, "the milk steeds of Rhesus."

Εἰπ' ἀγχι μ' ὦ πολυαῖν' Ὀδυσσευ, μέγα κυδὸς Ἀχαιῶν,
 'Ὅππως τοῦσδ' ἵππους λαβεῖτον' καταδυντὲς ὄμιλον
 Τρῶων; ἢ τις σφῶε πορὲν θεὸς ἀντιβολήσας;
 Αἰνῶς ἀκτίνεσσιν εἰκοτὲς ἡλίου.
 Αἰεὶ μὲν Τρῶεσσ' ἐπιμισγομαι, οὐδὲ τι φημι
 Μιμναζεῖν παρὰ νηυσὶ, γέρον πρὸ τῶν πολέμισστος·
 Ἀλλ' οὐπῶ τοιοῦς ἵππους ἰδὼν οὐδ' ἐνόησα,
 Ἀλλὰ τιν', ὅμμε' οἶω δομεῖναι θεὸν ἀντίαςαντα—κ. τ. λ.
 'Ἴπποι δ' οἶδε γέραιε νηληϊδὲς οὐς ἱρῆενεις,
 Θρηικῖοι· τόνδε σφιν ἀνακτ' ἀγαθὸς Διομήδης
 ἔκτανε.

IL. x. 544.

Say, thou whose praises all our host proclaim,
 Thou living glory of the Grecian name;
 Say whence these coursers, by what chance bestowed,
 The spoil of foes, or present of a god?
 Not those fair steeds so radiant and so gay,
 That draw the burning chariot of the day;
 Old as I am, to age I scorn to yield,
 And daily mingle in the martial field;
 But sure till now no coursers struck my sight,
 Like these, conspicuous through the ranks of fight;
 Some god, I deem, conferr'd the glorious prize,
 Blest as ye are and fav'rites of the skies, &c.

Father, not so, sage Ithacus rejoined,
 The gifts of heaven are of a nobler kind;
 Of Thracian lineage are the steeds ye view,
 Whose hostile king the brave Tydides slew.

POPE.

The horse we thus find employed in the chariot in the earliest war which has been minutely recorded. But it was also soon broken so as to bear a rider, and the fable of the centaur, an animal half man, half horse, represents the idea which was formed by the ignorant witnesses of a man on horseback. The natives of America formed the same conclusion when viewing the equestrian exercises of the Spaniards.

Of all the nations of antiquity, the Parthians are the most commonly celebrated for their superior skill in the management of the horse. They cultivated with great attention the breed which was noted for the lightness of the colour of the eyes, and for having the one eye generally differing from the other. The horse was trained to obey the slightest motions of the rein, and

to change with the utmost rapidity from one direction to another. They were naturally hardy and enduring, and accustomed to perform long journeys without any nourishment. The horsemen possessed a corresponding dexterity, and could discharge their arrows with great precision in the face of a pursuing enemy,—either retaining the usual posture, or rapidly turning round in the saddle during the hottest pursuit. It is on this account that the danger to his pursuer of a Parthian flight has become proverbial; and the nation long maintained its independence, annihilated the army of Crassus, and was formidable to the Romans in the days of Augustus.

As the Parthians employed the horse in war, so the licentious Sybarites associated it with their pleasures; and as it long preserved the honour of the one nation, so it is said to have been instrumental in the destruction of the other. The Sybarites taught their horses to dance to the sound of pipes, and introduced them as an amusement at their common feasts. The Sybarites engaged in a contest with the inhabitants of Cretona, and their horses were called to the unusual duties of war. The Cretonians had recourse to a curious stratagem. At the moment of attack, they caused a number of minstrels to sound those strains to which the horses had been accustomed to dance. These mechanically commenced their wonted evolutions and frolics, which being little accommodated to war, the Sybarites were thrown into inextricable confusion, were subdued, and annihilated.

Among the wandering tribes of the predatory nations of antiquity, the services of the horse were indispensable. These lived in the open air, subsisting on the coarsest food, performing long journeys through uncultivated or hostile countries, generally on horseback—their wives and children followed in waggons dragged by horses. They seldom dismounted, but eat and slept on horseback. The horse was still farther serviceable to the barbarous Sarmatians; they eat its flesh and drank its blood mixed with the milk of sheep. Yet these horses were carefully reared, of an excellent breed, and, as Pliny says, capable of performing a journey of one hundred and fifty miles on a stretch.

But though the ancients were not defective in their care of the horse, nor in admiration of its qualities, it is in modern times

that we are to expect the greatest cultivation of its various excellences, as well as the best accounts of its achievements. Still it is to be found in great perfection, and certainly in its most honoured relation to man, in the deserts of Arabia. The Arabian horse is a hardy animal, and left exposed, says Chateaubriand, to the most intense heat of the sun, tied by the four legs to stakes set in the ground, and refreshed generally only once in the twenty-four hours. Yet, continues the same writer, release his legs from the shackles, spring upon his back, and he will paw in the valley; he will rejoice in his strength; he will swallow the ground in the fierceness of his rage, and you recognise the original picture of Job.

Between this animal and his master a strong affection exists. Nor is it wonderful, when we consider that the horse is the support and comfort of the Arabian, his companion through many a dreary day and night, enduring hunger and thirst in his service. From their constant community, a kind of sociality of feeling exists between them. The terms in which he addresses his horse are thus given by Clarke:—"Ibrahim went frequently to Rama to inquire news of the mare whom he dearly loved; he would embrace her, wipe her eyes with his handkerchief, would rub her with his shirt sleeves, would give her a thousand benedictions during whole hours that he would remain talking to her. 'My eyes! my soul! my heart!' he would say, 'must I be so unfortunate as to have thee sold to so many masters, and not keep thee myself? I am poor, my antelope! I brought thee up in my dwelling as a child; I did never beat nor chide thee—'" But the poverty of the Arabs, and the desire of foreigners to possess their horses frequently compel them to do what they so much deprecate,—to sell their horse. A horse he may be tempted by a large sum to part with, but to sell a mare is a heart-rending trial to an Arab. "When the envoy," says Sir John Malcolm, "was encamped near Bagdad, an Arab rode a bright bay mare, of extraordinary shape and beauty, before his tent until he attracted his attention. On being asked if he would sell her, 'What will you give me?' was the reply. 'That depends upon her age; I suppose she is past five?' 'Guess again,' said he. 'Four?' 'Look at her mouth,' said the Arab with a smile. On examination she was found to be rising three. This, from her size and symmetry, greatly enhanced her

value. The envoy said, I will give you fifty 'tomans,' (a coin nearly of the value of a pound sterling.) 'A little more, if you please,' said the fellow, a little entertained, 'eighty—a hundred.' He shook his head and smiled. The officer at last came to two hundred tomans. 'Well,' said the Arab, 'you need not tempt me farther. You are a rich elchee (nobleman); you have fine horses, camels, and mules, and I am told you have loads of silver and gold. Now,' added he, 'you want my mare, but you shall not have her for all you have got.'" But their regard for the mare can do more than conquer the love of gold. An Arab sheick eloped with the daughter of a neighbouring chief, and though hotly pursued, both effected their escape upon a mare which they stole from the lady's father. The father, on his return from the pursuit, finding that the lover had stolen one object of his affection to carry off another, was flattered to think that he had not been beaten by a mare of another breed, and became easily reconciled to the young man, that he might recover the mare, which appeared an object about which he was more solicitous than his daughter.

Nor does the Arabian horse fail to repay the attachment of his master. His horse not only flies with him over the desert, but when he lies down to sleep, the faithful animal will browse on such herbage as is near the spot; will watch its master with solicitude; and, if a man or animal approaches, will neigh loudly till he is awakened. "When I was at Jerusalem," says Chateaubriand, "the feats of one of these steeds made a great noise. The Bedouin to whom the animal, a mare, belonged, being pursued by the governor's guards, rushed with him from the top of the hills that overlooked Jericho. The mare scoured at full gallop down an almost perpendicular declivity without stumbling, and left the soldiers lost in admiration and astonishment. The poor creature, however, dropped down dead on entering Jericho, and the Bedouin, who would not quit her, was taken, weeping over the body of his faithful companion. Ali Aga religiously showed me, in the mountains near Jericho, the footsteps of the mare that died in the attempt to save her master!"

The Arabians are curious in the pedigree of their horses, and even celebrate the union of those of noble extraction by a sort of marriage ceremony, which is publicly announced. Unless this

formality has been observed, the colt is termed *Kadischi*, or "of an unknown race." They can thus trace the pedigree some hundreds of years back to a celebrated ancestor. But of all the races, the *Kohlan* is the most distinguished both for beauty of form and docility of disposition. Many wonderful anecdotes are told of its intelligence:—"The *Kohlan*," says Count Rzeiousky, "knows when he is sold, or even when his master is bargaining to sell him. While the purchase is making, he soon guesses what is going on, becomes restless, gives from his beautiful eye a side glance at the interlocutors, scrapes the ground with his foot, and plainly shows his discontent. Neither the buyer nor any other dares to come near him; but the bargain being struck, when the vender taking the *Kohlan* by the halter, gives him up to the purchaser with a slice of bread and some salt, and turns away never to look at him as his own—an ancient custom of taking leave of a horse—it is then that this generous and noble animal becomes tractable, mild and faithful to another, and proves himself immediately attached to him whom his passion a few minutes before, might have laid at his feet and trampled under his hoof. This is not an idle story; I have been a witness of, and an actor in the interesting scene." Nor will this story seem improbable when we consider that of Kosciusko's horse. That general having sent a young man of the name of Zeltuer on a message to Solothurn, the youth declared on his return, that he would never ride his horse again, unless he gave him his purse at the same time. Kosciusko asking what he meant, he answered, "As soon as a poor man on the road takes off his hat, and asks for charity, the horse immediately stands still, and will not stir till something is given to the petitioner, and, as I had no money about me, I was obliged to make a motion as if I were giving something in order to satisfy the horse." Both anecdotes show how observant the horse is of the actions of its master, something also like sympathy with his feelings and interests.

The importation of the Arabian breed into England has become intimately connected with the annals of our horse races, Some of the horses first brought from Arabia having been by no means celebrated, the breed had fallen into disrepute till the descendants of one procured by Mr Darley from the deserts, and on that account called the *Darley Arabian*, having borne

away the palm for fleetness from all others, turned the tide of fashion in favour of that breed.' Yet it is only the progeny of the Arabian horses that excels. The English race-horses are equal, if not superior, to all other coursers.

As the extraordinary swiftness of the horse has been most signally displayed in the English race-course, and can also be there most precisely measured, we cannot omit the notice of some of the most remarkable of our racers. The most celebrated of these—and indeed the fleetest horse that ever was bred in the world—was Flying Childers, got by the Darley Arabian. What Achilles was among warriors, and Cæsar among conquerors, such was Childers among horses, without an equal and without a rival. He ran against the most famous horses of his age, and was always victorious. He has been known to move at the rate of nearly a mile in the minute. Next to Childers, in fame and fleetness, is Eclipse, so called from having been foaled during the great eclipse of 1764. This horse likewise was never beaten : one contemporary rival alone was supposed to exist, Mr Shaftoe's horse Goldfinder, but Goldfinder broke down the October before the proposed competition. Eclipse's rate of going was 47 feet in the second. Childers had a rate of 49. One hundred to one were offered on Eclipse against the most famous racers of his day. Mr O'Kelly purchased him for sixteen hundred and fifty guineas, and cleared by him twenty-five thousand pounds. He had a vast stride,—never horse threw his haunches below him with more vigour or effect ; and his hind legs were so spread in his gallop, that a wheelbarrow might have been driven between them. King Herod, another famous horse, which was generally though not like Eclipse uniformly successful, is chiefly celebrated for his progeny ; his immediate descendants having gained to their owners above two hundred thousand pounds.

The passion of the English for horse-racing is evident in the large sums which often depend on a single race. Of these races, which may be styled national, since they monopolize the attention of the whole sporting body, the chief in modern times were the match over the Beacon-course at Newmarket between Laburnum and Flea-catcher ; and, about twenty years afterwards, that between Hambletonian and Diamond. The sums sported on these races were immense ; the bettings seemed to mix with all the transactions of life, and a man might have found

a bettor from five guineas to five hundred upon the Royal, and more especially on the Corn-Exchange, with equal facility as at the clubs in St James', at Medley's, or at Newmarket.

We cannot, however, estimate the horse's powers of running from such matches only, where the speed, though it be indeed extraordinary, yet is necessarily exerted only for a brief time. We must take into consideration also his power of continuing for a very long time at a rapidity of pace, which, though not equal certainly to that displayed in the course, yet may well satisfy the expectations and excite the admiration of man. The horse particularly adapted for uniting swiftness with perseverance, is termed the hackney or roadster, distinguished for depth of shoulder, straightness of back, and strength of loins, in addition to which qualities, the experienced judge will look for strong fore-legs, the legs rather short than otherwise, the bones beneath the knee deep and flat, with the tendon not much tightened in, the foot pointing straight forward, lifting pretty high and coming flat down on the whole sole at once. Such a horse has been known to trot nine miles in half an hour, and sixteen miles in an hour. On the 25th July, 1793, Mr Crockett's gray mare trotted one hundred miles in twelve hours, but though the animal was not overcome, the person who rode her was so fatigued, that for the last ten miles he was obliged to be held on his saddle by two men. But the most extraordinary trotter on record, was a mare named Phenomena, bred by Sir Edward Astley in Norfolk. This mare was matched by her owner to trot seventeen miles in an hour, a feat till that time unheard of. She accomplished this with ease on another occasion within 53 minutes, and Mr Robson her owner, offered at high odds to trot her nineteen miles and a half in an hour. So reduced was this animal from its excessive exertions, and so small is human estimation of fallen greatness, that she was sold in 1810 for seven pounds; yet she seems to have recovered her vigour, for in the year after, and when she was twenty-three years of age, she trotted nine miles in twenty-eight minutes and a half, and gained four matches in one day. Sometimes indeed, the expedition of the horse has been so great, as from its incredibility to form a presumption against very strong evidence. At four o'clock in the morning, a gentleman was robbed at Gadshill, on the west side of Chatham, by a highwayman named Nicks,

who rode a bay mare. Nicks set off instantly for Gravesend, where he was detained nearly an hour by the difficulty of getting a boat, an interval which he employed to advantage in baiting his horse. From thence he got to Essex and Chelmsford, where he again stopped about half an hour to refresh his horse. He then went to Baintree, Bocking, Westerfield, and over the Downs to Cambridge, and still pursuing the cross roads, he went by Fenney and Stratford to Huntingdon, where he again rested about half an hour. Proceeding now on the north road, and at full gallop most of the way, he arrived at York the same afternoon, put off his boots and riding clothes, and went dressed to the bowling-green, where, among other promenaders, happened to be the Lord Mayor of the city. He there studied to do something particular, that his lordship might remember him, and asking what o'clock it was, the mayor informed him that it was a quarter past eight. Upon prosecution for the robbery, the whole safety of the prisoner rested upon this point. The gentleman swore positively to the time and place, but, on the other hand, the proof was equally clear of his being at York at the time specified. The jury acquitted him on the supposed impossibility, of his having got so great a distance from Kent by the time he was seen in the bowling-green. Yet he had been the highwayman. Nor is the expedition of the horse confined to those of a large size and robust make. A Shetland pony, eleven hands high, ran from Norwich to Yarmouth and back again, that is forty-four miles, in three hours and forty-five minutes; and a Galloway nag went from London to Exeter along with the mail, performing a distance of one hundred and seventy-two miles, at the average rate of nine miles an hour. These are feats which we would be sorry to see repeated. Let it suffice that they have been accomplished,—and let the fact, that the horse has so exerted itself in obedience to the will of man, save it from efforts which must be ruinous to the animal that undergoes them. The English are too prone to urge to its maximum the exertion of the horse's powers, but their horses are not alone in the power of uniting remarkable swiftness with great endurance of fatigue. "I ascertained," says Sir John Malcolm, "that those small parties of Toorkomans, who ventured several hundred miles into Persia, used both to advance and retreat at the average of nearly one hundred miles a-day. They train

their horses for these expeditions as we should do for a race, and describe him when in a condition for a foray by saying that his flesh is marble. They expected success from the suddenness of their attack, and the uncommon activity and strength of the horses on which they rode. Their sole object was plunder, and when they arrived at an unprotected village, the youth of both sexes were seized, tied on led horses, and hurried away into a distant captivity, with a speed which generally baffled all pursuit. When I was in Persia, in 1800, a horseman mounted upon a Toorkoman horse, brought a packet of letters from Shiraz to Teherary, which is a distance of five hundred miles, within six days."

Of the strength of the horse examples are daily seen, which only fail to excite our wonder on account of their frequency. It is well known what heavy loads he will bear upon his back, but it is in the draught that his strength is put most fairly to the test. A remarkable instance of the power of a horse, when assisted by art, was shown near Croydon, on the Surrey iron railway. A horse started, dragging twelve waggons, each with their burdens weighing about three tons, and at each of four successive pauses, four additional waggons were added to the train. The whole weight thus dragged was above fifty-five tons, and the horse proceeded at the rate of nearly four miles an hour for six miles. In this case, however, we have to admire not only the strength of the horse, but the facility which the railway gives to its exercise.

In the exertions of the coach-horse, we are presented with the results of the union of swiftness and strength. To drag at a rapid pace is much more laborious than at a slow one, for the weight which in the latter case the horse is enabled by the force of his muscles to throw into the collar, is in the latter expended in the act of trotting or walking. Yet notwithstanding this, many extraordinary instances of the swiftness of the coach-horse are on record. In 1750, the Earl of March and Lord Eglinton provided a four-wheel carriage, with a man in it, drawn by four horses nineteen miles, in the space of fifty-three minutes and a half. Mr Giles of Leadenhall-market drove his mare, called the Maid of the Mill, twenty-eight miles on Sunbury Common, in an hour and fifty-eight minutes—the mare never throughout her performance attempting to break from a trot. The fame

of the exploit reached the continent, and a gentleman from the Netherlands purchased the mare.

For the purpose of leaping, that kind of horse called the Hunter, is the best adapted. He should be not less than fifteen hands in height, with a lofty forehead, light head and neck, large thin shoulders, deep chest, and above all, should possess firmness of joint, with legs and pasterns rather short. A hunter so qualified has been known to leap over a bar three feet six inches high, taking the leap at the distance of seventeen feet seven inches from it, and covering nine yards and eight inches of ground. Mr Cunningham of Craigends leaped on horseback over the canal between Glasgow and Paisley, a breadth of eleven feet, the horse clearing altogether fifteen feet. Some of the most extraordinary leaps, however, have been made by the horse when it overcame the control of man. Some years ago, a fine Arabian horse disengaged himself at Greenock from the groom who had charge of him; ran with precipitation towards the dry dock, and, unable to restrain himself when he came to the edge, leaped down, and lighted on all fours on the flags which covered the bottom, and, after trotting about for a while, thirty-four feet below the level of the ground, mounted to the top by the very steep stairs that surround the dock. A gentleman's servant who was riding to the post-office on a hackney that had never till that day been known to leap, received behind him a glazier. No sooner was the latter mounted than the horse, alarmed at the rattling of the crates of glass, started at full speed, and coming to the lodge gate, which was five feet six inches high, and spiked at the top, he cleared it all at one stroke, without any injury to his riders, or even to the glass. In 1793, a young gentleman riding between Ravenglass and Whitehaven, on a spirited blood horse, passed a chaise which caused the animal to take fright. It bolted off at full gallop, and coming upon Egremont bridge, (the middle of the battlements of which presents nearly a right angle to the entrance upon it,) was going with such fury, that, unable to retrieve himself, he leaped sidelong upon the battlements, which are upwards of four feet high. The rider seeing it impossible to recover his horse, and the improbability of saving either of their lives had he floundered over head foremost, had presence of mind to strike him on both sides with his spurs, and force him to take a clear leap. Owing to this precaution

he alighted upon his feet, and the rider firmly kept his seat till reaching the bottom he leaped off. When we consider the height of the bridge, which has been accurately ascertained to be upwards of twenty feet and a-half to the top of the battlements, and that there was not one foot depth of water in the bed of the river where they alighted, it is really wonderful that they were not both struck dead on the spot. Yet neither the horse nor the man were disabled from immediately pursuing their journey. "I will tell one more history of a horse," says Lord Herbert, and we quote his own words, "which I bought of my cousin Fowler, of the Grange, because it is memorable. I was passing over a bridge, not far from Colebrook, which had no barrier on the one side, and a hole in the bridge not far from the middle! My horse, though lusty, yet being very timorous, and seeing besides but very little in the right eye, started so much at the hole, that, upon a sudden, he had put half his body lengthwise over the side of the bridge, and was ready to fall into the river with his fore-feet and hinder-foot on the right side, when I, foreseeing the danger I was in if I fell down, clapped my left foot, together with the stirrup and spur, flat-length the left side, and so made him leap upon all-fours into the river, where, after some three or four plunges, he brought me to land."

The horse is an inconvenient inmate in a ship, and has no liking to employ his powers in swimming. The wide extended field and the solid earth alone give scope to the exercise of his energies. On some occasions it has been found very difficult to overcome the opposition of a horse to go on board a ship, and he rejoices at the termination of a voyage. He sometimes even anticipates the entrance of the ship into the harbour. When Ducrow's equestrian company was approaching the stone pier at Newhaven, two of the horses getting a glimpse of the green shore, became impatient of their situation, and so desirous of the land, that they leaped overboard and made towards it. The groom instantly sprung after them, and kept swimming beside them, guiding and cheering them in their progress. When they got out of the water, they, by snorting and various kinds of gambols, expressed their high satisfaction at being restored to their natural fields. Yet the horse is well-gifted with the power of swimming, and whole regiments of cavalry have often thus crossed broad rivers. Very extraordinary feats of the horse in

swimming are on record. We shall mention only two:—The first is related in a letter from Kingston, as having been achieved by a horse which, as well as other live stock, was thrown, in a stress of weather, out of a vessel from America. The horse, which was of a white colour, of great strength and agility, after his companions had sunk, continued to contend with the waves, and, having kept company with the vessel through a heavy sea for two days, was then taken on board and brought safe and well into port. The second is related by M. De Pages in his travels round the world. “I should have found it difficult,” he says, “to give it credit had it not happened at this place (the Cape of Good Hope) the evening before my arrival; and if, besides the public notoriety of the fact, I had not been an eyewitness of those vehement emotions of sympathy, blended with admiration, which it had justly excited in the mind of every individual at the Cape. A violent gale of wind setting in from north and north west, a vessel in the road dragged her anchors, was forced on the rocks and bulged; and, while the greater part of the crew fell an immediate sacrifice to the waves, the remainder were seen from the shore struggling for their lives, by clinging to the different pieces of the wreck. The sea ran dreadfully high, and broke over the sailors with such amazing fury, that no boat whatever could venture off to their assistance. Meanwhile a planter, considerably advanced in life, had come from his farm to be a spectator of the shipwreck; his heart was melted at the sight of the unhappy seamen, and knowing the bold and enterprising spirit of his horse, and his particular excellence as a swimmer, he instantly determined to make a desperate effort for their deliverance. He alighted and blew a little brandy into his horse’s nostrils, and again seating himself in the saddle, he instantly pushed into the midst of the breakers. At first both disappeared, but it was not long before they floated on the surface, and swam up to the wreck; when taking with him two men, each of whom held by one of his boots, he brought them safe to shore. This perilous expedition he repeated no seldomer than seven times, and saved fourteen lives; but, on his return the eighth time, his horse being much fatigued, and meeting a most formidable wave, he lost his balance and was overwhelmed in a moment. The horse swam safely to land, but his gallant rider was no more!” Sparrman relates the same story with

some diversity of circumstances. The ship that was lost, he says, was Dutch, named the *Jong Theomas*, and the brave individual who saved the people, was *Voltemad*, one of the keepers of the Company's menageries. The East India directors in Holland honoured his memory by calling one of the new-built ships after his name, and causing the whole incident to be painted on the stern. But the order to provide for his posterity was neglected, for his son, a young corporal, who had been witness of the affecting disaster, could not obtain even the situation left vacant by the heroic death of his father.

The foregoing anecdotes show to a great extent the various capabilities of the horse, its strength, its fleetness, and its perseverance. But, by the exertions of man in training him, its docility and affectionate qualities have been made still more evident. The different shapes of the various breeds of horses naturally mark them out for different employments, but the horse seems to enter into the spirit of all his occupations, and, whether in the field of war, or dragging the peaceful plough; whether in the carriage, the course, or the gin, he wonderfully accommodates himself to what is expected of him, and to the requisite manner of life. A horse has resided for the last ten years upon the upper floor of the Leith and Berwick wharf, London, without having once touched the ground since his elevation. His duty has consisted in working the discharging crane of the Berwick smacks; and although in this manner he has contrived to walk upon a fair average computation nearly ten miles a-day, he has never been more than thirty feet from his manger. As might be expected from so long an apprenticeship, he does not now require much attention, but, on the contrary, performs his duty with a great deal of intelligence. When the weight he is raising reaches the desired height, it is transferred from the machinery to the keeping of a friction roller, by means of a rope and pulley from below; the horse then quietly waits till the noise of the clutch thrown back, when the end of the chain has again reached the ship's hold, tells him his shoulders are again wanted. One thing may be asserted, that he has raised more grain than any other individual in the same number of summers, and, at the same time, seen less of what he was about. He appears to have been a hunter in his younger days, which renders it likely that he has seen something of the world before he was

removed to his present habitation ; it would therefore be not a little interesting to watch how far memory would serve him, should he ever visit the world of his youth. Such instances show how readily the spirit of the horse accommodates itself to circumstances. Yet the breaking of horses is a task that requires not a little skill and delicacy. They have different dispositions ; some are timid, some courageous, they are to be found intelligent or stupid, playful and generous, and a few untameably furious or incurably vicious. Of this last disposition, it is probable that not a few of the instances have been caused by the cruelty or ungenerous treatment of the person who first attempts to break them. The spaniel will lick the hand that beats it, but the horse must be won by kindness. In Arabia, where the horse is to be found in its most intelligent, mild, and docile state, it is also best treated. It is not there trained by grooms and servants, among whom our horses often acquire vicious tricks, but by the owner himself. After the first trial, in which indeed the Arabian will sometimes ride on a young steed a hundred miles over the burning sand, it is never whipped, but domesticated and treated like a companion, and the Arabian horse is found the most docile and affectionate of animals.

There is required in the horse-trainer, however, besides mildness and patience of temper, a proper command over the animal, which can only be acquired by familiarity with its habits. It is very certain that a horse speedily understands whether his rider has been accustomed to that exercise, or whether he be raw and inexperienced, and that in the latter case he will sometimes endeavour to throw the individual who is incapable of retaining a powerful command over his energies. There is a sort of authority over the horse which some possess, and which does not depend on cruelty or severity, but on a particular adaptation of the energies of the mind strengthened by confidence and the results of experience. These remarks furnish the only explanation which we can give of the Horse-whisperer, whose feats in reducing the most incorrigible horses to obedience, have drawn the attention of some individuals of great eminence. The facts are recorded in Townsend's Survey of the County of Cork, and independent of the fame which they have caused, they are credible on the report of this gentleman, who states himself

to have been an eye-witness of the transactions which we now quote. "James Sullivan," he says, "was a native of the county of Cork, and an awkward, ignorant rustic of the lowest class, generally known by the appellation of the *whisperer*, and his profession was horse-breaking. The credulity of the vulgar bestowed that epithet upon him, from an opinion that he communicated his wishes to the animal by means of a whisper; and the singularity of his method gave some colour to the superstitious belief. As far as the sphere of his control extended, the boast of *veni, vidi, vici*, was more justly claimed by James Sullivan than by Cæsar or even Buonaparte himself. How his art was acquired, or in what it consisted, is likely to remain for ever unknown, as he has lately left the world without divulging it. His son, who follows the same occupation, possesses but a small portion of the art, having either never learned its true secret, or being incapable of putting it in practice. The wonder of his skill consisted in the short time requisite to accomplish his design, which was performed in private, and without any apparent means of coercion. Every description of horse or even mule, whether previously broke or unhandled, whatever their peculiarities or ill habits might have been, submitted without show of resistance to the magical influence of his art, and in the short space of half an hour became gentle and tractable. The effect, though instantaneously produced, was generally durable. Though more submissive to him than to others, they seemed to have acquired a docility unknown before. When sent for to tame a vicious horse, he directed the stable in which he and the object of his experiment were placed to be shut, with orders not to open the door until a signal given. After a *tete-a-tete* between him and the horse for about half an hour, during which little or no bustle was heard, the signal was made; and upon opening the door, the horse was seen lying down, and the man by his side playing familiarly with him like a child with a puppy dog. From that time he was found perfectly willing to submit to discipline, however repugnant to his nature before. I once saw his skill tried on a horse, which could never before be brought to stand for a smith to shoe him. The day after Sullivan's half-hour lecture, I went not without incredulity to the smith's shop, with many other curious spectators, where we were eye-witnesses of the complete success of his art. This

too had been a troop horse ; and it was supposed, not without reason, that after regimental discipline had failed, no other would be found availing. I observed that the animal seemed afraid whenever Sullivan either spoke or looked at him. How that extraordinary ascendancy could have been obtained it is difficult to conjecture. In common cases this mysterious preparation was unnecessary. He seemed to possess an instinctive power of inspiring awe, the result, perhaps, of natural intrepidity, in which I believe, a great part of his art consisted ; though the circumstance of the tête-à-tête shows that upon particular occasions, something more must have been added to it. A faculty like this would in other hands have made a fortune, and great offers were made to him for the exercise of his art abroad ; but hunting, and attachment to his native soil, were his ruling passions. He lived at home in the style most agreeable to his disposition, and nothing could induce him to quit Dunballow and the fox-hounds."

Although the usual character of the horse be submission and docility, yet it cannot be denied that there are many which would require some such power as that of the Whisperer to reduce them to tractability, and failing such means, are, to a great degree, irreclaimable. Nay, sometimes, whether that the animal has been originally vicious, and his propensities have been only suppressed, not overcome, or whether he has been trained amiss, or that he is peculiarly sensible of injuries, and seeks a time for revenging them, a horse has been known, though usually tame, to break forth into acts of much ferocity. The following incident presents us with a case of fatal revenge, or an assertion of a dignity not to be trifled with :—A person who resided near Boston, in America, was in the habit whenever he wished to catch his horse while it was grazing in the field, of presenting it with a quantity of corn in a measure. When called on, the horse would come up and eat the corn, thus affording to his master an opportunity of putting the bridle over his head. But the owner having deceived the animal several times, by calling on him when he had no corn in the measure, which he held out as if it were full, the horse began to suspect his design, and coming up one day as usual on being called, he looked into the measure, and perceiving it empty, turned round, reared on his hind legs, and killed his master on the spot. Sometimes the horse seems

to be actuated by a feeling of deep revenge. In 1734, the horse of a nobleman in Ireland ran at a man, seized him with his teeth by the arm, which he broke, then threw him down and lay upon him, so that every effort to get him off proving unavailing, they were forced to shoot him. The reason assigned for this ferocity was that he had been castrated by this man some time before, an injury which the animal seems to have remembered. The following incident might be adduced as an instance of injudicious frolicsomeness in the horse, did not the suspicious manner in which it occurred point it out as a singular case not merely of fierceness which the horse sometimes possesses, but of a desire to commit injury, which is not the quality of the animal even in its state of wild nature. On a farm in the parish of Fintry, well known for the superior breed of its lambs, the shepherd was astonished and grieved to observe a gradual diminution in the number of his flock. On his way to the hills in the morning the dead bodies were found strewed in various directions, and what greatly added to his surprise was, that they were quite entire, which clearly proved that the work of destruction could not be imputed to the fox or eagle, as these animals are never known to destroy except for the purpose of allaying their hunger. The faithful dog was consequently suspected as the depredator, and the shepherd lay in wait to watch its motions; but he was astonished to see the real cause of his misfortunes appear in the shape of a young colt, which cautiously approaching a group of lambs that were sporting on a neighbouring knoll, sprung among them, and seizing one of the innocents by the throat, would very soon, but for the interference of the shepherd, have added it to the number of the victims to its uncommon disposition.

More frequently, however, the horse is distinguished by the remarkable extent to which the docility that is his common characteristic has been carried. The labour and ingenuity expended by public performers, to teach the horse feats of agility and imitation have been abundantly rewarded; and the intelligent actions of the horse, performed in accordance to the wishes of his master, have often furnished a very popular and agreeable spectacle. A horse called Morocco, trained by one Banks, was famous in the days of our early dramatists, and is alluded to by some of them. It is told of him that he would restore a glove to its owner on his master's whispering the person's name into his ear; that

he could dance to the sound of a pipe, tell the number of pence in a silver coin, and count money with his feet. Of his master, Sir Walter Raleigh says, "that had Banks lived in olden times, he would have shamed all the enchanter's in the world; for whosoever was most famous among them could never master or instruct any beast as he did his horse." To this horse Shakspeare is supposed to allude in the following speech:—"How easy it is to put years to the word three, and study three years in two words, the dancing horse will tell you!"* The most celebrated performer of equestrian feats in our times, Mr Ducrow, of Astley's Amphitheatre, has also exhibited to the public a corresponding dexterity and alacrity in the horse. Some of his horses have been taught to carry their riders through the evolutions of a dance, changing partners with the utmost propriety, in all respects obeying the music, and bowing to the spectators in token of gratitude for the applause which they received. One in particular was taught to act the Bucephalus of Alexander, to exhibit all the frowardness and tricks of a vicious and irreclaimable horse, and, at the proper time, to become submissive and affectionate to the representative of the Macedonian hero. In the same Amphitheatre many instances of the extreme docility of the horse have been exhibited. In the entertainment of the "Blood-red Knight," one was introduced that mimicked death so completely, that he suffered himself to be handled and examined without exhibiting the least signs of voluntary motion, or any symptoms of life or feeling. Mr Astley, junior, of the same Theatre, had in his possession a Barbary horse, forty-three years old, which had been presented to him by the Duke of Leeds. This animal for several years officiated in the character of a waiter in the course of the performances. He brought in the tea-table and its appendages, with the requisite chairs, and finished his achievements by taking a kettle of boiling water from a blazing fire. The same animal would ungirth his own saddle, and wash his feet in a pail of water. When, from old age, he died, his hide was made into a thunder-drum, which, to this day, stands on the prompter's side of the theatre. Another instance may suffice to give an idea of such feats of the horse, which may be, indeed, frequently witnessed. It is mentioned by M. le Gendre, as having been exhibited at the fair of St Germain in 1732, by a

* *Love's Labour Lost*, Act I. Scene II.

small horse six years old. Among other tricks which this animal performed with great precision, he could specify by striking his foot so many times on the ground the number of spots upon a card which any person present had drawn out of a pack. He could also tell, in a similar manner, the hour and minute to which the hands of a watch pointed. His master collected from several persons present different pieces of money, and threw them promiscuously into a handkerchief; the horse restored with his mouth to each his own piece.

But besides such feats as these, which must have been the result of long training and much art on the part of the master the horse has frequently and unexpectedly discovered, by singular actions, the natural sagacity that belongs to him. These may be arranged under two heads, according as they discover the exercise of memory united with sagacity, or as they evidence something more, an instinct or an intelligence accommodating itself to the circumstances and wishes of the animal. That the horse remembers the scenes and transactions of past times, is proved from every day's experience. It enters familiarly into its usual abode; inclines to stop at its ordinary halting-place; prefers a journey which it has formerly taken, and falls readily into an occupation to which it has been accustomed. It seeks the fields in which it has formerly pastured, and has been known long afterwards to repair to the scenes of its earlier days. A horse belonging to a gentleman of Taunton strayed from a field at Corfe, three miles distant from thence. After a long and troublesome search, he was discovered on a farm at Branscombe, in Devon, a distance of twenty-three miles, being the place where he was foaled, although it is certain that the animal had not been there for ten years, during the whole of which time he had been in the possession of the gentleman who then owned him. Five years after a Highland pony, reared upon Drumchany, belonging to General Stewart of Garth, had been brought to Edinburgh, Sir Patrick Walker rode him to Perthshire, in company with several gentlemen. "We were advancing," says he, "in the direction of Drumchany, when it was proposed that a trial should be made of the pony's memory. The evening being considerably advanced, and darkness rapidly approaching, we were desirous of taking a ford which led directly to Drumchany, but were uncertain of the precise place,

although we knew it could not be far off. My pony was, therefore, allowed to take the lead, and advanced cheerily, till suddenly pausing, and turning quickly to the right, he trotted down a furrow, through a potato-field, that led directly to the ford in question, which he crossed in the same decided manner, and piloted the rest of the way to Drumchany. During my stay there, I may add, that the pony got out of the stable one night, and was found next day pasturing among the mosses where he had been bred."

The horse, however, not only remembers the earliest scenes of its existence, but also those where it has been treated with kindness, or received benefits. A cart horse, belonging to Mr Leggat, Gallowgate, Glasgow, had been several times afflicted with the botts, and as often cured by Mr Downie, a farrier, near that street. After a considerable interval, the disorder returned while the animal was employed in College-street, a distance of nearly a mile from Mr Downie's workshop. When seized with the disease he was arranged in a row with other horses engaged in the same work, and the carters being absent, he left the other carts, and, unattended by any driver, went down the High-street, along Gallowgate-street, and up a narrow lane, and did not stop till he reached the farrier's door. Being unaccompanied, it was surmised that he had been seized with his old complaint. When unyoked he lay down, and showed by every means of which he was capable, that he was in distress. He was again treated as usual and sent home to his owner. In the following case the horse discovering the same sagacity was not so well rewarded. A horse, whose stable was situated about a quarter of a mile from Dundee, had been for some years regularly shod by Mr Gow, and had also undergone several operations by him as veterinary surgeon. Years, however, had incapacitated the animal from executing his wonted tasks; but his master, grateful for past services, had humanely tended him in the winter, in the hopes that spring might bring fresh vigour to his aged limbs. Some time after, Mr Gow and his workmen were astonished by a visit of their old customer without any attendant. The afflicted brute stood before his former benefactor and commenced licking and biting his own sides, accompanying the action with a low moaning as indicative of some severe internal commotion. Unfortunately, however, his dumb

eloquence was lost on the person he addressed, who, unable to conjecture what this meant, shifted his place. His petitioner still following him, met with rebuffs, and was at last dismissed. Foiled in this the distressed creature returned as he came, lay down in his stall, and in less than fifteen minutes afterwards expired. It was found that in the agonies of death he had broken a strong rope by which he had been fastened, and disposed of the stable door according to his mind, before he got out in search of that relief which, after all, was unwittingly denied him.

The memory of the horse extends also to those habits, which may at first have been taught him with much labour, and he is urged into the enthusiasm of the chase, or of the field-day, by any signal associated with these exercises. Though long unaccustomed to hear the words of military command, their recurrence often gains from him implicit obedience, even at the peril of his unprepared rider. An old cavalry horse has been known to stop in the midst of a rapid gallop on hearing the word halt, certainly very injudiciously in this case called. The Tyrolese, in one of their insurrections in 1809, took fifteen Bavarian horses, on which they mounted as many of their own soldiers. A rencontre occurring with a squadron of the regiment of Bubenhoven, these horses on hearing the trumpet and recognising the uniform of their corps, set off at full gallop, and carried their riders, in spite of all their resistance, into the midst of the Bavarian ranks, where they were made prisoners. The cavalry horse delights in the exercises and sounds of war, and whatever strikes his mind as bearing a resemblance to them, operates strongly on his feelings. Previously to the erection of the cavalry barracks in Glasgow, the detachment of horse for the West of Scotland was sometimes divided between Hamilton and Kilmarnock; those assigned to the latter place having been sent to the fine grass fields in the vicinity of Loudon Castle, presented on one occasion a most striking appearance. The day was heavy and sultry; the thunder, which had at first been heard only at a distance, began to increase in loudness and frequency, and drew the marked attention of the horses. As it still became more loud, and the numerous peals echoed along the extensive slopes of Galston moor, crept along the water of Irvine, or were reverberated through the woods, the horses became animated with the same enthusiasm which seizes them on

hearing the rolling sounds emitted from numerous cannon. They rushed together, and rapidly arranging themselves in their accustomed ranks, presented the front of a field of war. The same enthusiasm is reported to have seized a dragoon regiment of horses which was grazing at Haverscroft, in the west riding of York, during a thunder-storm, and we do not doubt that the same effect has been frequently witnessed. In the battle-field, the horse, when wounded, is sometimes known to emit a shrill cry, which, from its rarity and its peculiar tone, is said to be of all cries the most affecting. But the horse loves hunting as well as war, and one accustomed to the hunt is apt to be urged into it again, as soon as he hears the enlivening sounds which he has so often obeyed. The very cry of the hounds has a powerful influence on one that has been accustomed to the chase. A proof of this occurred in 1807, when the Liverpool mail was changing horses at the inn, in Monk's Heath, between Congleton and Newcastle-under-line. The horses that had performed the stage had been just taken off, when Sir Peter Warburton's fox-hounds were heard in full cry. With their harness on, the horses immediately started after them, and followed the chase until its termination, which was occasioned two hours after they had joined it, by reynard running to earth in a plantation. The following anecdote which shows the horse's recollection of habits, however disreputable, deserves to be recorded for the somewhat ludicrous situations into which the animal, in this case, brought his master. Between 1750 and 1760, a Scottish lawyer made a journey to London. At that period such journeys were usually performed on horseback, and the traveller might either ride post, or if willing to travel economically he bought a horse, and sold him at the end of his journey. The lawyer had chosen the latter mode of travelling, and sold the horse on which he rode from Scotland as soon as he arrived in London. With a view to his return, he went to Smithfield to purchase a horse. About dusk a handsome one was offered, at so cheap a rate that he suspected the soundness of the animal, but being able to discover no blemish, he became the purchaser. Next morning, he set out on his journey, the horse had excellent paces, and our traveller while riding over the few first miles, where the road was well frequented, did not fail to congratulate himself on his good fortune which had led him to make so advantageous a

bargain. On Finchley common, and at a place where the road ran down a slight eminence, and up another, the lawyer met a clergyman driving a one horse chaise. There was nobody within sight, and the horse by his manœuvre instantly discovered the profession of his former owner. Instead of pursuing his journey, he laid his counter close up to the chaise and stopt it, having no doubt but his rider would embrace so fair an opportunity of exercising his profession. The clergyman seemed of the same opinion, produced his purse unasked, and assured the astonished lawyer, that it was quite unnecessary to draw his pistol as he did not intend to offer any resistance. The traveller rallied his horse, and with many apologies to the gentleman he had so innocently and unwillingly affrighted, pursued his journey. The horse next made the same suspicious approach to a coach, from the windows of which a blunderbuss was levelled with denunciations of death and destruction to the hapless and perplexed rider. In short, after his life had been once or twice endangered by the suspicions to which the conduct of his horse gave rise, and his liberty as often threatened by the peace-officers, who were disposed to apprehend him as a notorious highwayman, the former owner of the horse, he was obliged to part with the inauspicious animal for a trifle, and to purchase at a large price one less beautiful, but not accustomed to such dangerous habits.

In such cases as these we discern the effects of habit and education, and great part of what appears to be sagacity, may be referred to memory. There are many cases, however, in which the horse discovers much intelligence, which may be properly ascribed to its own instinct, its observation, and its natural prudence. It is thus that it walks more distrustfully during the night than the day, in places which it has never visited, than in those to which it is accustomed, and even the very vice of starting at any uncommon appearance, is only an excess of that caution, which, in a proper degree, is alike useful to itself and its rider. "I have often remarked," says Professor Hennings, "that when I have wanted to ride through water where the bottom could be seen, the horse went through without hesitation, but when the water was muddy he shrunk back, tried the bottom with one foot, and in case he found it firm, advanced the other after it; but if at the second step he took he found the depth increase considerably, he went back. Why did he

act in this manner? Certainly for no other reason than because he supposed the depth would increase still farther and be attended with danger. Did not the horse then act upon pre-meditated grounds? Pontoppidan says that the Norwegian horses in going up or down the steep paths among the rocks, feel their way very cautiously before them, to ascertain whether the stones upon which they are about to step are firm. In these cases the best horseman's life would be in danger if he did not let the animal act according to its own judgment." Horses are particularly cautious in travelling over marshy ground, and those accustomed to such a soil have a singular skill which they probably gather from experience. When the Highland pony comes to any boggy piece of ground, it first puts its nose to it, then pats on it in a peculiar way with one of its fore-feet, and from the sound and feeling of the ground it knows whether it will bear its footsteps. It follows the same method with ice, and determines in a minute whether it will proceed.

Other anecdotes might be adduced in abundance, to show not merely a natural caution and instinct of self-preservation in the horse, but also a certain ingenuity and the use of means to compass an end. In 1794, a gentleman in Leeds had a horse, which on being turned into a field where there was a pump well supplied with water, regularly procured by his own dexterity what he required to drink. He took the handle into his mouth, and worked it with his head till the trough had received a sufficient quantity of water to satisfy his thirst. On one occasion, a horse after having consumed his allotment of hay, ascended by the stairs to the hay-loft, the floor of which being frail was penetrated by his legs,—so that the horse was found in a very helpless condition—but still in such a position as led those who saw him in it to suppose, that he had been attempting to push a new supply of hay into the rack. The horse has sometimes even gone beyond the province allotted to him in the field, and given the intimation expected only from the dog. A shooting pony has been known to stop in the same way as a dog does when it feels the scent of game, and to follow the keeper till he raised a covey of partridges.

None but the most vicious horses will intentionally injure any person, but for its master the animal has a particular regard. It obeys his command with greater pleasure than that of a

stranger, testifies delight at his presence, seems to understand his wishes, and spares no exertion to accomplish them. When from any accident he receives injury, it manifests in a very distinct manner its sorrow. A yeoman in Essex was riding his hunter over his farm, and stooping to unfasten a five-barred gate, his heel touched the horse's side, the hunter mistaking this for a signal to take a leap, attempted it while the gate was swinging, and his hinder legs becoming entangled, he came down upon his unfortunate master's body and crushed him instantly to death. A considerable time, as was supposed, elapsed before any witness arrived, but the generous horse was standing close by his dead master, as if understanding and lamenting his fate. A somewhat similar regard for their master has been testified by horses otherwise vicious. One that had a particular antipathy to strangers, while bearing his master home from a jovial meeting, became disburthened of his rider, who not secure of his equilibrium on horseback preferred a brief indulgence of sleep on the ground. The horse, however, did not scamper off, but kept faithful watch by his prostrate master till the morning, when the two were perceived about sunrise by some labourers. They approached the gentleman with the intention of replacing him on his saddle, but every attempt on their part was resolutely opposed by the grinning teeth and ready heels of the horse, who did not allow himself to be seized till the gentleman himself awoke from his sleep. The same horse among other bad propensities, constantly resented the attempts of the groom to trim his fetlocks. This circumstance had been mentioned in a conversation, during which his youngest child, a very few years old, was present, when its owner defied any man to perform the operation singly. The father next day, in passing through the stable-yard, beheld with the utmost distress, the infant employed with a pair of scissiors in clipping the fetlocks of the hind-legs of this vicious hunter—an operation which had been always hitherto performed with great danger even by a number of men. But the horse, in the present case, was looking with the greatest complacency on the little groom, who soon after, to the very great relief of his father, walked off unhurt.

The horse is far from being always passive or without ingenuity and invention in the demonstrations of his affection for his master. On an evening in the midst of the winter

of 1830, when Mr Smith, supervisor of excise at Beaulieu, was returning from Fort Augustus to that place, the road among the hills was so blocked up with snow as to leave all tract of it indiscernible. In this difficulty, he resolved to trust to his horse, and throwing loose the reins, allowed him to choose his course. The animal proceeded slowly and cautiously, till coming to a ravine near Glenconvent, horse and rider sunk in a snow-wreath several fathoms deep. Mr Smith, on recovering, found himself nearly three yards from the dangerous spot, with his faithful horse standing over him and licking the snow from his face. He thinks the bridle must have been attached to his person, but so completely had he lost all sense of consciousness, that beyond the bare fact as stated, he had no knowledge of the means by which he made so remarkable an escape. In the following case, related by Professor Kruger of Halle, the horse has rivalled the most remarkable examples of the sagacity and fidelity of the dog:—"A friend of mine," says he, "who was one dark night riding home through a wood, had the misfortune to strike his head against the branch of a tree, and fell from his horse stunned by the blow. The horse immediately returned to the house they had left, which stood about a mile distant. He found the door closed,—the family had retired to bed. He pawed at the door, till one of them hearing the noise, arose and opened it, and, to his surprise, saw the horse of his friend. No sooner was the door opened than the horse turned round; and the man, suspecting there was something wrong, followed the animal, which led him directly to the spot where his master lay on the ground in a faint."

Horses are naturally gregarious, and in those regions in which they exist in a state of untamed freedom, they are always found in large companies. Even in their domesticated and servile condition, they continue to preserve a strong sympathy for one another. They testify mutual delight in company, repeat the enlivening neigh, and are at once more submissive and alert when working together, as if they found a consolation for their toils in mutual encouragement. The strength of their social feelings is very evident in the solicitude of the mare for its foal. It is related that in the month of April, 1794, owing to a strong wind blowing contrary to the current of the river, the island Kroutsand, surrounded by the two branches of the Elbe, be-

came entirely covered with water, to the great alarm of the horses, which, with some foals, had been grazing on it. They set up a loud neighing, and collected themselves together within a small space. To save the foals that were now standing up to their bellies in water seemed to be the object of their consultation. They adopted a method at once ingenious and effective. Each foal was arranged between horses, who pressed their sides together so as to keep them wedged up, and entirely free from injury from the water. They retained this position for six hours, nor did they relinquish their burden till the tide having ebbed and the water subsided, the foals were placed out of danger. Of the solicitude of the mare for its foal another instance may be given. A pony mare and its colt grazed in a field adjoining the Severn. One day the pony made its appearance before the gentleman's house to whom she belonged, and, by clattering with her feet and other gestures, drew his attention. A person being sent out, she immediately galloped off, and, being followed, proceeded through various gates all broken open. She then came to the field, through which she passed directly for a spot in the river, over which she hung with a mournful look, and there the colt was found drowned! Nor does the horse forget the wants or the claims of its aged kindred. M. de Boussanelle, captain of cavalry in the regiment of Beauvilliers, mentions that a horse belonging to his company being disabled by age for eating his hay or grinding his oats, was fed for two months by two horses on his right and left who eat with him. They drew the hay out of the rack, chewed it, and put it before their aged comrade, and, in the same way, prepared for him his portion of oats. This sympathy, however, does not exclude the most powerful exercise of emulation, and, in the race-course especially, the steed exerts his utmost spirit, and plies every nerve, not only in obedience to his master, but in rivalry of his competitors. He has been even known to endeavour to secure victory by what must certainly be considered as unfair means. In 1753, Mr Quin had a famous racer, who, finding his opponent likely to pass him, seized him by the legs, so that both riders were obliged to dismount in order to separate the enraged animals, who were engaged with one another in a most furious conflict.

We have mentioned the sympathy of the horse with its own

species ; but, in the strength of its social feelings, it has often extended its benevolence to animals which had no natural claim to it. The dog, in particular, so often associated with the horse in the chase, and even in the labours of the field, has been frequently received very far into the good graces of the more dignified animal. A gentleman in Bristol had a greyhound which slept in the same stable, and contracted a very great intimacy with a fine hunter. When the dog was taken out the horse neighed wistfully after him ; he welcomed him home with a neigh ; the greyhound ran up to the horse and licked him ; the horse, in return, scratched the greyhound's back with his teeth. On one occasion, when the groom had the pair out for exercise, a large dog attacked the greyhound, bore him to the ground, and seemed likely to worry him, when the horse threw back his ears, rushed forward, seized the strange dog by the back, and flung him to a distance which the animal did not deem it prudent to make less. Doctor Smith, a practising physician in Dublin, had no other servant to take charge of his horse while at a patient's door, than a large Newfoundland dog ; and, between the two animals, a very good understanding subsisted. When he wished to pass to another patient without remounting, he needed but to give a signal to the pair, who followed him in the most perfect good order. The dog also led the horse to the water, and would give him a signal to leap over a stream. While performing this on one occasion, the dog lost hold of the reins, when the horse, having cleared the leap, trotted back to the dog, who resumed the reins. Not the dog only, however, has gained the confidence of the horse. A horse belonging to Mr Jennings, and called the Mad Arabian, from his furious disposition, was afterwards tamed by Hughes of the London circus, and became so attached to a lamb, that he would allow it to mount on his back and gambol about his shoulders. To prove that disparity of kind does not always prevent social advances, the natural historian of Selborne says, that a very intelligent person had assured him that, " in the former part of his life, keeping but one horse, he happened also on a time to have but one solitary hen. The two incongruous animals spent much of their time together in a lonely orchard, where they saw no creature but each other. By degrees an apparent regard began to take place between the two sequestered individuals ; the fowl

would approach the quadruped with notes of complacency, rubbing herself quietly against his legs, while the horse would look down with satisfaction, and move with the greatest caution and circumspection, lest he should trample on his diminutive companion."

The horse has also his antipathies; and, as the dog and cat, so exclusively adopted to the domestic circle, are, nevertheless, irreconcilably hateful to one another, so the horse and the camel, the most useful of all beasts of burden, never see one another without testifying the strongest marks of fear and aversion. Gibbon, indeed, has ventured to assert the contrary; and that every stable in Persia is a proof that they are perfectly reconcilable. The reconciliation, like that of the dog and cat, is produced by art; the antipathy is natural, and remains in the nature of the animals. The fact is confirmed by many observers. M. Sante, in a memoir on camels, published at Paris in 1811, states that, at Pisa, it is necessary to accustom young horses to the sight of camels, and that, without some such precaution there would be constant accidents from their meeting. If a strange horse passes through Pisa and sees a camel, which is there a frequent occurrence, he immediately starts, stops, elevates his mane and ears with terror, paws the earth, and, in many cases, takes the bit in his teeth and flies off precipitately. Similar effects may be witnessed in our own country whenever camels are exhibited on our streets. This antipathy has been noticed by the earliest historians. Herodotus tells us that Cyrus, meeting a great force of Lydian cavalry under the command of Cræsus, disencumbered his camels of their burdens, and marched them in front of the Persian infantry against the foe. The stratagem was effectual, for the cavalry of Cræsus became unmanageable, and ran off immediately on feeling the obnoxious smell of the camels. The horse, as is well known, has a natural aversion to the braying of the ass. It has also, in common indeed with other animals, an antipathy to serpents. As Morreau de Jonnes was riding in the island of Martinique, his horse suddenly started, and stood trembling in every limb. On looking round he observed a *fer-de-lance*, erect in a bush of bamboo. The horse drew back immediately, keeping his eyes fixed on the snake. As de Jonnes was looking for some one to hold his horse, that he might shoot the viper, he

beheld a Negro streaming with blood, and cutting the flesh from a wound which the serpent had inflicted. Yet he entreated de Jonnes not to kill the serpent, as he wished to seize it alive as a charm against future bites.

That the horse is much affected by musical sounds must be evident to every one who has paid attention to its motions and the expression of its countenance while listening to the performances of a military band. It is even said that in ancient times the Libyan shepherds were enabled to allure to them wild horses by the charms of music. That this is at least not entirely improbable, is evident from an experiment made by a gentleman in the year 1829, on some of the Duke of Buccleuch's hunters. The horses being shy of his approach, and indeed retreating from it, he sounded a small musical instrument, called the mouth Eolian harp. On hearing it, they immediately erected their heads and turned round. On his again sounding it, they approached nearer him; he began to retreat, and they to follow. Having gone over a paling, one of the horses came up to him, putting its mouth close to his breast, and seemingly delighted with the sounds which he continued to produce. As the other horses were coming up, apparently to follow the example of their more confident comrade, the gentleman retired.

The horse is to be found of very various sizes. Some of the shelties, though exceedingly vigorous and fully formed, scarcely exceed the size of a Newfoundland dog. In 1824, there were two horses at the riding-school of Valenciennes, well-matched, and only thirty inches in height. On the other hand, the English horses and breeds obtained from them and the Netherland horse, often unite the stature of the camel with the corpulence of the ox. The horses to be seen in London are almost all of an imposing grandeur of height, and in particular the dray horses might almost rival the magnitude of the elephant.

As to the duration of the life of the horse many instances of longevity might be produced. The charger of Sir Ralph Abercrombie, which was wounded at the battle of Alexandria, afterwards died at Malta, and, on a stone erected there in commemoration of its services, the age of thirty-six is inscribed. In 1790, there was alive, near Haddington, a Shetland pony which had been at the battle of Prestonpans in 1745, and whose age

amounted to forty-seven years. At eight years of age the marks on the lower jaw of the horse are filled up, and he is then considered the worse for his years. He is often serviceable till nearly twenty years of age, but generally long before that period, his various hardships, ill treatment, and fatigues, have induced perhaps a premature decay of all his powers.

THE ASS.

WHEN the ass is brought into comparison with the horse, in respect to external form, every thing appears to be in favour of the latter animal. The ass is inferior to the horse in size, less sprightly in its motions, its head is heavy, and it stoops in its gait. The horse generally moves with its head erect, looks freely abroad on the skies and earth, with an eye expressive of lively emotions; the ass is seen trudging slowly along, as if sensible of the hopelessness of a cessation from toil, and full of melancholy thoughts, its leaden eye is fixed on the ground. It even seems painfully conscious of the estimation in which it is generally held; and if we may suppose that the horse borrows a sprightliness and hilarity from the approbation and affection of its master, why should we not also ascribe part of the dejection and awkwardness of the ass, to a consciousness that it is often an object of ridicule, of harsh and unjust treatment. Yet its shape and its habits, in its state of servitude, though presenting much that is pleasing, also it must be confessed are somewhat untoward and ungainly. Its mouth is indeed finely shaped, but the head above it increases to a disproportioned size, and the appearance is far from being extenuated by the extraordinary thickness of its skull and skin, the shaggy hair which clouds its visage, and the heavy and muscular ears which rise on either side. Its legs are neat, perpendicular, and finely placed, but they rather contrast with a very solid and thick-skinned body, which seems to overload its supporters.

Yet the ass is not without great intrinsic merit; it is associated with many recollections both tender and impressive; and it has accordingly been mentioned by Stewart as an instance of an object, which, though it may never attain honour in the

pages of the poet, is highly distinguished and interesting amidst the scenes presented by the painter. "Not to speak," says he, "of the frequent allusions to it in holy writ, what interest are we led to attach to it in our early years by the fables of *Æsop*, by the similes of *Homer*, by the exploits of *Don Quixote*, by the pictures which it recalls to us, of the by-paths in the forest, where we have so often met with it as a beast of burden, and the associate of the vagrant poor, or where we have stopped to gaze on the infant beauties which it carried in its panniers; in fine, by the circumstances which have called forth in its eulogy, one of the most pleasing efforts of *Buffon's* eloquence,* its own quiet and inoffensive manners, and the patience with which it submits to a life of drudgery."

But the associations connected with the ass, are not exclusively those of a quiet submission to the cares and drudgeries that are the share of poverty. The ass is to be found also in a wild state, the emblem of irreclaimable freedom. "He scorneth," says *Job*, "the multitude of the city, neither regardeth he the crying of the driver; the range of the mountains is his pasture, and he searcheth after every green thing." The ass, in its wild state, possesses astonishing swiftness;—it has feet, says *Ossian*, like the whirlwind,—it moves, says *Ælian*, as if it were carried forward by wings like a bird. The accounts of those who have seen the ass in its untamed condition, correspond with these descriptions. The desert tract, called by the Indians *Run*, which divides *Kattewar* from *Cutch*, is one of the resorts of the wild ass. A traveller who visited the region, discovered several herds of these animals, amounting to sixty or seventy. Wishing to have a nearer view, he galloped towards them, but though mounted on a horse of proved speed, he could never approach nearer than twenty yards. A dog which accompanied him was close at their heels, when they turned and pursued him with an angry snorting noise. This ass, which the Persians call *Khur*, is considerably larger than in its tame state; the body is of an ash colour, which gradually fading, becomes a dirty white under the belly. The ears and shoulder stripe resemble those of the

* It may be remarked, that the description given by *Goldsmith* of the ass, vol. i. p. 504—6, though, as he acknowledges, formed upon *Buffon's*, is eminently graphic, and distinguished by a gentle eloquence.

common kind, but the head seemed much longer, and the limbs more roughly and strongly formed. The natives of India describe the Khur as extremely watchful, so that it cannot be caught without great difficulty. It breeds on the banks of the Run, and the salt island in the centre of this tract. It browses on the stunted and saline vegetation found in the desert, but in November and December, it advances into the country in herds of hundreds, to the utter destruction of whole fields of grain. The animal is then caught in pits, but is found to be fierce and untamable. He bites and kicks in the most furious and dangerous manner, accompanied by the angry snorting, which appears to be his only voice. Their flesh is esteemed good food by some of the natives of the lowest cast, who lie in wait for them near the drinking places. The following extract from Heber describes the same animal in a better situation: "I saw in a paddock, near Bombay," says he, "a noble wild ass from Cutch, as high as a well-grown Galloway, a beautiful animal, admirably formed for fleetness and power, apparently very gentle and very fond of horses, and by no means disliked by them, in which respect the asses of India differ from all others of which I have heard. The same fact has been told me of the wild ass in Rajpootana. No attempt has, however, been made to break him in for riding, and it is doubtless now too late. Mr Elphinstone said, that he had never heard of any thing of the sort being tried by the natives, though they are much in the habit of mounting different animals, such as stags, &c."*

The ass, after being taken into the service of man, was not immediately subjected to the most degrading employments. The Indian horse, says Herodotus,† were armed like their foot; but besides led horses, they had chariots of war drawn by horses and wild asses. The use of the ass in active employments, and even in war, is not confined to the Indians or to ancient times. In Egypt, the inhabitants generally ride upon mules or asses; the latter are so active in this country and possess such extraordinary strength, that for all purposes of labour, even for carrying heavy burdens across the sandy desert, they are next in utility to the camel, and will bear work better than horses. The horse

* Journey through the Upper Provinces of India, iii. 101.

† B. vii. c. 86.

in Egypt, is rather an animal of parade than for essential service. The vast army of the Wahabees, in the desert, were said to be mounted upon camels and upon asses.*

The ass prospers in a warm climate ; it is seldom indeed to be found in the colder regions of the earth, and it is in the east that we are to seek for it in its greatest perfection. That the ass was not produced in Scythia on account of its extreme cold, was observed so early as the time of Herodotus, a fact which he produces as tending to account for the confusion of the Scythian cavalry, on the approach of the Persian army, which contained great numbers both of mules and asses. The ass is still to be found in high perfection in Persia.† There are two kinds of asses in this country, the one slow and heavy, and used for bearing burthens, the other beautiful, and perhaps the finest in the world. Their skin is glossy, their heads high, they have light feet, which are raised with grace, walk well, and are solely employed to ride on. The saddles used are round on the one side, flat on the other, made of woollen cloth or tapestry, and the rider sits on them nearer the crupper than the neck. Some of these cost about eighteen pounds sterling, none are sold under twenty-five pistoles. They are broke like horses, and taught no other pace than the amble. The manner of teaching them is by tying their hind and fore legs with two ropes of cotton, which are made to the length the ass is to pace, and are suspended by a cord fastened to the girth. Their nostrils are slit to make them breathe more freely ; and a horse must gallop to keep pace with them.

The asses, even in Arabia, travel much more expeditiously than the camel. The loaded camels take two nights to perform the journey between Djidda and Medina, resting mid-way at Hadda during the day, but a small caravan of asses lightly laden, which starts every evening, performs the journey of fifteen or sixteen hours in one night, arriving regularly at Mecca early in the morning. It is by the ass-caravan that letters are conveyed between the two towns. In time of scarcity, or at the approach of the Hadj, or pilgrimage, the hire of an ass from Djidda to Mecca, is twenty piastres. This price would be considered enormous in any other part of the Levant. Only fifteen piastres are paid for a camel from Cairo to Suez, which is double the

* Clarke's Travels, vol. v. 81.

† Buffon.

distance between Djidda and Mecca, and the hire of a camel is more than double that of an ass.*

The ass was anciently unknown in the countries of Northern Europe. In Greece and Rome, however, it was held in much estimation, and honoured in their mythology and festivals. By its braying, it was said to have discomfited, severally, the deities who warred against the liberty of Jupiter and the chastity of Vesta, and the ides of June were celebrated in Rome as the festival of the ass. On that occasion banquets were set forth at the doors of the citizens; the millstones were decked with garlands: the asses, which on workdays turned them, were led in holyday triumph covered with wreaths of flowers, and the grateful ladies of Rome walked before them in the procession bare-foot, to the temple of the goddess whose honour the braying of the ass had saved. The church of Rome, many of whose festivals were an accommodation of pagan rites to a supposed subservience to Christianity, formed of the festival of Vesta, the feast of asses, which, during the dark ages, was held with particular hilarity in Britain. Of this singular ceremony we have the following account from a very excellent authority:†—

“ On the eve of the day appointed to celebrate it, before the beginning of vespers, the clergy went in procession to the door of the cathedral, where were two choristers singing in a minor key, or rather with squeaking voices,—

*Lux hodie, lux letitiæ, me judice, tristis
Quisquis erit, removendus erit solemnibus istis.
Sicut hodie, procul invidiæ, procul omnia mæsta;
Læta volunt, quicumque celebrant Asinaria Fasta.*

Light to-day, the light of joy—I banish every sorrow;
Wherever found, be it expell'd from our solemnities to-morrow;
Away be strife, and grief, and care, from every anxious breast;
And ail be joy and glee in those who keep the ass's feast.

“ After this anthem, two canons were deputed to fetch the ass, and to conduct him to the table, which was the place where the great chanter sat, to read the order of the ceremonies, and the names of those who were to take any part in them. The ani-

* Burckhardt's Travels in Arabia, vol. i. 46.

† Turner's History of England during the Middle Ages, vol. v. p. 105—107.

mal was clad with precious priestly ornaments, and, in this array, was solemnly conducted to the middle of the choir; during which procession the following hymn was sung in a major key. The first and last stanzas of it were :—

Orientis partibus
Adventavit asinus,
Pulcher et fortissimus,
Sarcinis aptissimus.
Hez, Sire Ane, hez ! &c., &c.

Amen, dicas asine !
Jam satias de gramine :
Amen ! Amen ! itera,
Aspernare vetera.
Hez, Sire Ane, hez !

These have been thus Englished :—

From the country of the East
Came this strong and handsome beast,
This able ass—beyond compare,
Heavy loads and packs to bear.
Huzza, Signor Ass, huzza !

Amen ! bray, most honour'd Ass,
Sated now with grain and grass :
Amen repeat, amen reply,
And disregard antiquity.
Huzza, Signor Ass, huzza !

“ After this the office began by an anthem in the same style, sung purposely in the most discordant manner possible. The office itself lasted the whole of the night and part of the next day ; it was a rhapsody of whatever was sung in the course of the year at the appropriated festivals, forming altogether the strangest and most ridiculous medley that can be conceived. As it was natural to suppose that the choristers and the congregation should feel thirst in so long a performance, wine was distributed in no sparing manner. The signal for that part of the ceremony was an anthem, commencing ‘ *Conductus ad poculum,*’ &c. (Brought to the glass, &c.)

“ The first evening after vespers the grand chanter of Sens headed the jolly band in the streets, preceded by an enormous lantern. A vast theatre was prepared for their reception before the church, where they performed not the most decent interludes.

The singing and dancing were concluded by throwing a pail of water on the head of the grand chanter. They then returned to the church to begin the morning office; and on that occasion, several received, on their naked bodies, a number of pails of water. At the respective divisions of the service, great care was taken to supply the ass with drink and provender. In the middle of it a signal was given by an anthem,—‘*Conductus ad ludos,*’ &c. (Brought to play, &c.) and the ass was conducted into the nave of the church, where the people, mixed with the clergy, danced round him, and strove to imitate his braying. When the dancing was over, the ass was brought again to the choir, where the clergy terminated the festival.”

But the circumstance of the animal having been made an object of ludicrous admiration in superstitious ages is not that on which its estimation depends. The ass is a useful, a docile, in many cases, an affectionate, animal. In eastern countries it conduces to the splendour and convenience of the rich; with us it is especially the friend and support of the poor. It assists them in travelling, drags patiently to the market-place their little merchandise; and though, if overloaded, it refuses to stir, yet the load under which it will move, when compared with its size, is such as may well satisfy expectation; is even greater, comparatively, than is commonly allotted to the horse.

The ass, though with us it generally moves with the apparent determination to proceed as slowly as possible, is naturally a very swift animal, and often, even bearing a burden, moves with considerable rapidity. For a small wager, a Mr Wilson of Ipswich, drove an ass in a gig to London and back again, a distance of one hundred and forty miles, in two days. The animal went at the rate of an ordinary gig-horse, and so great was its endurance and spirit, that without the application of the whip it came in at the rate of seven miles an hour. It was twelve hands and a half high, and half-bred Spanish and English.

Ass-races have been frequently celebrated in various countries, more, it must be supposed, for the ludicrous effect which many of their tricks and uncouth motions on such an occasion exhibit, than for the purpose of discovering the swiftness of the animal. Skippon mentions, in his journey through Italy, that he saw ass-races at Florence, and cart and waggon-races, at which the Great Duke was present. In France, likewise, dur-

ing the year 1776, about the time that the mania for horse racing was at its height there, ass-races were also introduced, and were placed under the special patronage of the Queen. She honoured such exhibitions in the neighbourhood of Paris by her presence, and the winner had for his reward, a hundred livres and a golden thistle, in allusion to the plant of which the ass is so fond.

In Scotland likewise ass-races have been frequently celebrated, not only in modern, but in ancient times, and as well for the amusement of the multitudes who congregate at a country fair, as for the gratification of royal and noble spectators. They are numbered among the favourite amusements of James V. ; and the following description of an ass-race, supposed to have taken place in Fife before that monarch, must be interesting not only as a good account of the various features of the race, but as most humorously characteristic of the qualities and dispositions of the animal itself :—

“ Who can in silly pithless words paint well
 The pithy feats of that laborious race ?
 Who can the cudgellings and whippings tell,
 The hurry, emulation, joy, disgrace ?
 'Twould take for tongue the clapper of a bell,
 To speak the total wonders of the chase ;
 'Twould need a set of sturdy brassy lungs,
 To tell the mangled whips, and shatter'd sticks and rungs.

Each rider pushes on to be the first,
 Nor has he now an eye to look behind ;
 One ass trots smartly on, though like to burst
 With bounding blood and scantiness of wind ;
 Another, by his master bann'd and cursed,
 Goes backward through perversity of mind,
 Inching along in motion retrograde,
 Contrarious to the course which Scotland's Monarch bade.

A third obdurate stands, and cudgel-proof,
 And stedfast as th' unchisell'd rock of flint,
 Regardless though the heaven's high marble roof
 Should fall upon his skull with mortal dint,
 Or though conspiring earth beneath his hoof,
 Should sprout up coal with fiery flashes in't,
 Whilst on his back his grieved and waspish master,
 The stubbornner he stands, still bangs and bans the faster.

Meantime the rabblement, with fav'ring shout
 And clapping hand, set up so loud a din,
 As almost with stark terror frightened out
 Each ass's soul from his particular skin :
 Rattled the bursts of laughter round about,
 Grinned every phiz with mirth's peculiar grin,
 As through the loan they saw the cuddies awkward,
 Bustling, some straight, some thwart, some forward, and some
 backward.

—————In foul confusion and alarm
 Jostle the cuddies with rebellious mind,
 But who is yon, the foremost of the swarm,
 That scampers fleetly as the rushing wind ?
 'Tis Robert Scott, if I can trust my eyne,
 I know the borderer well, by his long coat of green.

See how his bright whip, brandish'd round his head,
 Flickers like streamer in the northern skies ;
 See how his ass on earth with nimble tread
 Half-flying rides, in air half-riding flies,
 As if a pair of ostrich wings, outspread,
 To help him on, had sprouted from his thighs,
 Well-scamper'd Bob—well whipt, well spurr'd, my boy !
 O haste ye, Ranter haste—rush—gallop to thy joy.

The pole is gain'd ; the ass's head he turns
 Southward to tread the trodden ground again ;
 Sparkles like flint the cuddy's hoof, and burns,
 Seeming to leave a smoke upon the plain ;
 His bitted mouth the foam impatient churns ;
 Sweeps his broad tail behind him like a train ;
 Speed cuddy, speed ! O, slacken not thy pace,
 Ten minutes more like this and thou shalt gain the race.

He comes careering on the sounding loan,
 With pace unslacken'd hast'ning to the knoll,
 And, as he meets with those that hobble on
 With northward heads to gain the ribbon'd pole,
 Ev'n by his forceful fury are o'erthrown
 His long-ear'd brethren in confusion droll ;
 For as their sides he passing, slightly grazes,
 By that collision shock'd, down roll the founder'd asses.

Heels over head they tumble, ass on ass
 They dash, and twenty times roll o'er and o'er,
 Lubberly wallowing along the grass,
 In beastly ruin and with beastly roar ;
 While their vex'd riders in poor plight alas !
 Hung from their saddles three long ells and more,

Bruised and commingled with their cuddies sprawl,
Cursing th' impetuous brute whose conflict caused their fall.

With hats upon their heads they down did light—
Withouten hats disgracefully they rose;
Clean were their faces ere they fell and bright,
But dirty faced they got up on their toes;
Strong were their sinews ere they fell and tight,
Hip-shot they stood up, sprained with many woes;
Blythe were their aspects ere the ground they took,
Grim louring rose they up, with crabbed ghastful look.

Ah! then, with grievous limp along the ground,
They sought their hats that had so flown away,
And some were cuff'd and much disaster'd found,
And haply some not found unto this day.
Meanwhile, with vast and undiminished bound,
Sheer through the bestial wreck and disarray,
The brute of Mesopotam hurries on,
And in his madding speed devours the trembling loan.

Speed, cuddy, speed—one short, short minute more,
And finished is thy toil, and won the race—
Now—one-half minute, and thy toils are o'er—
His toils are o'er, and he has gain'd the base!
He shakes his tail, the conscious conqueror,
Joy peeps through his stupidity of face,
He seems to wait the monarch's approbation,
As quiver his long ears with self-congratulation.”*

The ass is far from being incapable of understanding the nature of the employments in which he is engaged, or disobedient to the commands of his master. An ass was employed at Carisbrook, in the Isle of Wight, in drawing water by a large wheel from a deep well, supposed to have been sunk by the Romans. When his keeper wanted water he would call the ass by his name, saying, “I want water, get into the wheel,” which wish the ass immediately complied with: and there can be no doubt but that he knew the precise number of times necessary for the wheel to revolve upon its axis in order to complete his labour, for every time he brought the bucket to the surface of the well, he stopped and turned round his head to observe the moment when his master laid hold of the bucket to draw it towards him, because he had then a nice motion to make either

slightly forward or backward as the situation of the bucket might require. The ass has been taught to perform tricks on the stage, and to act such mimickries as are considered wonderful even in the dog and horse. John Leo, who wrote a description of Africa, which was printed in 1556, says, "that when the Mahometan worship was over, the common people of Cairo resorted to the foot of the suburbs called Bed-Elloch to see the exhibition of stage-players and mountebanks, who teach camels, asses, and dogs to dance. The dancing of the ass is diverting enough; for after he has frisked and capered about, his master tells him, that the Soldan, meaning to build a great palace, intends to employ all the asses in carrying mortar, stones, and other materials; upon which the ass falls down with his heels upwards, closing his eyes, and extending his chest, as if he were dead. This done, the master begs some assistance of the company, to make up the loss of the dead ass; and having got all he can, he gives them to know that truly his ass is not dead, but only being sensible of his master's necessity, played that trick to procure some provender. He then commands the ass to rise, who still lies in the same posture, notwithstanding all the blows he can give him, till at last he proclaims, by virtue of an edict of the Soldan, all are bound to ride out next day upon the comeliest asses they can find, in order to see a triumphal show, and to entertain their asses with oats and Nile water. These words are no sooner pronounced, than the ass starts up, prances, and leaps for joy. The master then declares, that his ass has been pitched upon by the warden of his street, to carry his deformed and ugly wife; upon which the ass lowers his ears, and limps with one of his legs, as if he were lame. The master, alleging that his ass admires handsome women, commands him to single out the prettiest lady in company; and accordingly, he makes his choice, by going round, and touching one of the prettiest with his head, to the great amusement of the company."

There is a remarkable instinct possessed by many animals by which they are enabled, though removed to a distance, to regain their ordinary haunts or places of residence. That this instinct is possessed in considerable perfection by the ass, the following instance shows.—In 1816, an ass belonging to Captain Dundas was shipped on board the *Ister*, bound from Gibraltar to Malta. The vessel struck on a sand-bank off the Point de Gat, and the

ass was thrown overboard into a sea which was so stormy that a boat that soon after left the ship was lost. In the course of a few days, when the gates of Gibraltar were opened in the morning, the guard was surprised by the same ass which had so recently been removed, presenting itself for admittance. On entering, it proceeded immediately to the stable which it had formerly occupied. The ass had not only swam to the shore, but found its own way from Point de Gat to Gibraltar, a distance of more than two hundred miles, through a mountainous and intricate country intersected by streams, which it had never passed before—but which it had now crossed so expeditiously that it must have gone by a route leading the most directly to Gibraltar.

The ass, though usually quiet, and apparently rather dull and insensible, is capable of the extremities of ferocity and timidity. One, which had been bit by a mad dog, attacked several persons furiously with its teeth, and even when beat off by stunning blows, returned to the conflict. A few years ago, at Swalwell, a man set his bull dog to attack an ass, that for a while gallantly defended itself with its heels, which it was agile enough to keep presented to the dog. Suddenly, turning round on its adversary, it caught it with its teeth, in such a manner, that the dog was unable to retaliate. It then dragged the assailant to the river Derwent, into which it plunged it over head, and lying down upon it, kept it in the water till it was drowned. On the other hand, the ass is said to manifest in the presence of the lion such fears, as those which the fascinating power of the serpent causes in certain birds.

Though the ass be very frequently the subject of ill treatment, yet it seems to be an animal not without affection for its master, which in many cases we may suppose to be returned by kindness and care on his part. These little interchanges of benefits in a life of hardship, while they must soothe the toils of the animal may warm and gladden the heart of its master. A pleasing instance of this effect we have in the following anecdote, related in Church's Cabinet of Quadrupeds. "An old man, who some time ago sold vegetables in London, had an ass which carried his baskets from door to door. He frequently gave the poor industrious creature a handful of hay, or some pieces of bread or greens, by way of refreshment and reward. The old man

had no need of any goad for the animal, and seldom indeed had he to lift up his hand to drive it on. His kind treatment was one day remarked to him, and he was asked whether the beast was not apt to be stubborn. 'Ah!' he said, 'it is of no use to be cruel; and as for stubbornness I cannot complain, for he is ready to do any thing or go any where. I bred him myself. He is sometimes skittish and playful, and once ran away from me—you will hardly believe it, but there were more than fifty people after him, attempting in vain to stop him; yet, he turned back of himself, and never stopped till he ran his head kindly into my bosom.'"

THE MULE.

THE hybrid animal, engendered between the horse and ass, has been well known, and held in high estimation from the earliest times. It is mentioned in the book of Genesis, and in the earliest of the heathen writers. David and his nobles rode upon mules. Mules dragged the combustibles to the funeral pile of Patroclus, and the chariot of Priam to the tent of Achilles. Mules were often employed in the chariot race: Pelias thus contended for the prize; and mules in the age of Homer ploughed the plains of Greece.

The Latins distinguished the animal into two classes, according as a she-ass or a mare was the mother. The former was called *Hinnus*, the latter *Mulus*. The *hinnus* was characterised as being small, slow and stubborn; the *mulus*, as large, swift and good-tempered; a description which holds good still. There are male and female mules, but both are sterile, for it seems to be a law of nature, that propagation should cease with the offspring of two different species: thus the same sterility that characterises the produce of the horse and zebra, the lion and tiger, the goldfinch and canary, belongs to that of the horse and ass. Yet to this almost universal rule, a few exceptions are in the present case to be found. Some of these have occurred in foreign countries, and one or two well-attested cases in Scotland. In all these instances, however, it is to be remarked, that the foal either was produced dead, or died before it reached maturity.

The mule possesses some of the best qualities of the two useful animals, from which it springs. It is, indeed, inferior to the horse in strength, and to the ass in patience, but it retains somewhat of the agility and beauty of motion, which we admire in the one, and is sure-footed like the other. It has a spirited look like the horse—it toughly endures labour like the ass; the external resemblance to both its parents is wonderfully preserved throughout every part of its body.

The mule, like the ass, is found in greatest perfection in warm climates, and in the region of the east. “In almost all the other provinces of Persia but Khorassan,” says Sir John Malcolm, “mules are in more general use than camels, and their extraordinary strength and activity, combined with their power of enduring fatigue, place this animal in the estimation of the natives of Persia, next to the horse, and their breed is hardly an object of inferior care.” In mountainous and uncultivated countries, amidst the regions of the Andes and the Alps, the mule is of indispensable service, carrying burdens or its rider along stony or precipitous tracts with singular sagacity, vigour, and safety. In Cairo, mules stand on the streets ready to be hired, and the muleteers there are a numerous class.

The mule, in our country, is frequently to be found of a considerable size and strength. Of those used on the Bridgewater canal, near Manchester, many measure upwards of fourteen hands high. But of all the countries in Europe, Spain is most distinguished for its fine breed of mules, for the care with which they are trained, and the estimation in which they are held. They are there employed in very honourable services, highly valued, and sometimes disposed of for not less than fifty or sixty pounds sterling. In proportion to the care which is employed in training them, their sagacity and useful qualities are discovered, of which the following quotation from Townsend’s Journey through Spain, furnishes a good description.

“In this little journey, I was exceedingly diverted and surprised with the docility of the mules, and the agility of their drivers. I had travelled all the way from Barcelona to Madrid, in a *coche de colleras*, with seven mules; and, both at that time and on subsequent occasions, had been struck with the quickness of understanding in the mule, and motion in the driver;

but, till this expedition, I had no idea to what extent it might be carried.

“The two coachmen sit upon the box, and, of the six mules, none but the two nearest have reins to guide them: the four leaders being perfectly at liberty, and governed only by the voice. Thus harnessed, they go upon the gallop the whole way; and, when they come to any short turning, whether to the right or to the left, they instantly obey the word, and move altogether, bending to it like a spring. As all must undergo tuition, and require frequently some correction, should any one refuse the collar, or not keep up exactly with the rest, whether it be, for example, *Coronela* or *Capitana*,—the name pronounced with a degree of vehemence, rapidly in the three first syllables, and slowly in the last, being sufficient to awaken attention, and to secure obedience; the ears are raised, and the mule instantly exerts its strength. But, should there be any failure in obedience, one of the men springs furiously from the box, quickly overtakes the offending mule, and thrashes her without mercy; then, in the twinkling of an eye, leaps upon the box again, and calmly finishes the tale he had been telling his companion.

“In this journey I thought I had learnt the names of all the mules; yet one, which frequently occurred, created some confusion, because I could not find to which individual it belonged, nor could I distinctly make out the name itself.

“In a subsequent journey, the whole difficulty vanished, and my high estimation of the mule, in point of sagacity, was confirmed. The word in question, when distinctly spoken, was *Aquella otra*, that is, *you other also*: and then, supposing *Coronela* and *Capitana* to be pairs, if the coachman had been calling to the former by name, *Aquella otra* became applicable to the latter, and was equally efficacious as the smartest stroke of a long whip; but if he had been chiding *Capitana*, in that case *Aquella otra* acted as a stimulus to *Coronela*, and produced in her the most prompt obedience.”

Yet the Spanish mule is in some cases a headstrong animal, and is so wedded to custom that it is almost impossible to get it to act out of the routine to which it has been once trained. A singular instance of this was afforded by the mules, which on one occasion were employed to drag the baggage of Buonaparte. No threats, no blows could move them; nor did it seem as if

they could be brought to be serviceable on the occasion, till some one noticed that they were not arranged in their usual order in the traces of the waggons. No sooner, however, had they obtained their desired position, than they began to drag the waggons with their wonted strength and animation.

THE ZEBRA.

IN very early times we find mention made of an animal which the Romans called the hippotigris, as possessing at once the shape and agility of the horse, and the ferocity and the beauty of skin and colour which distinguish the tiger. Bassianus Caracalla is said to have killed in one day an elephant, a rhinoceros, a tiger, and a hippotigris. The animal was thus even then considered better fitted to furnish a savage sport in the combat than to be rendered useful by domestication. The same character still belongs to the zebra, which is doubtless the animal designated by the name hippotigris. It possesses some of the characteristics of the horse,—smaller in size it strongly resembles it in the shape of its body, its head, its limbs, and its hoofs. It moves in the same paces, with a similar activity and swiftness. But it discovers none of that docility which has rendered the services of the horse so invaluable to man. On the contrary, it is proverbially untameable ; it is ever the most wild even among those ferocious animals which are ranged in the menagerie, and it preserves in its countenance the resolute determination never to submit. So completely, indeed, is this its character, that the few instances in which it has shown any thing like submission, are looked upon as the most extraordinary triumphs of art over nature. Even in these cases the complacency which the animal discovers is partial, and not to be trusted. In the year 1803, General Dundas brought a female zebra from the Cape of Good Hope, which was deposited in the Tower, and there showed less than the usual impatience of subordination. The person who had accompanied her home and attended her there, would sometimes spring on her back, and proceed thus for about two hundred yards, when she would become restive, and oblige him to dismount. She was very irritable, and would kick at her

keeper ; one day she seized him with her teeth, threw him down, and showed an intention to destroy him, which he disappointed by rapidly extricating himself. She generally kicked in all directions with her feet, and had a propensity to seize with her teeth whatever offended her. Strangers she would not allow to approach her unless the keeper held her fast by the head, and even then she was very prone to kick. Another which was kept at Kew showed the same savage disposition, allowing no one to approach except his keeper. He was sometimes able to mount the back of the animal. It one day eat a quantity of tobacco, and the paper that contained it; and was said even to eat flesh. The most docile zebra on record was burnt at the Lyceum, near Exeter Change. This animal allowed its keeper to use great familiarities with it,—to put children on its back without discovering any resentment. On one occasion a person rode it from the Lyceum to Pimlico. It had been bred in Portugal, and was the offspring of parents half reclaimed. At the Cape of Good Hope many attempts have been made to train the zebra, but they have been all to a great degree unsuccessful. A merchant, who had succeeded so far as to be able to get them harnessed to his chariot, almost lost his life from the ungovernable fury with which they rushed back to their stalls.

There are instances of mules having been obtained from the ass and zebra, but these in Europe do not exceed three, and they either died soon, or were unserviceable. One which was bred in the Menagerie at Paris, from a female zebra and Spanish ass, had a good deal of the form of its sire ; but it had the ungovernable and vicious temper of the zebra, and attacked with its teeth every one who approached it.

The zebra which we have been describing, is that of the mountains or common zebra. Besides this, however, there is a variety which is called the zebra of the plain, from the nature of the regions in the vicinity of the Cape of Good Hope which it inhabits. It differs from the other species in having the ground colour of the body white, the mane alternately striped with black and white, and the tail of a yellowish white. A specimen of this animal is to be found in the Tower of London, where it has been brought to a degree of tameness seldom reached by the other variety. It runs peaceably about the Tower, with a man by its side, whom it does not attempt to leave except for the

purpose of breaking off to the canteen, where it is sometimes regaled with a glass of ale, a liquor for which it discovers a considerable fondness.

There are two other animals of the horse kind, for the knowledge of which we are indebted chiefly to the reports of travellers. These are the Dziggtai and the Quagga, the former a native of Central Asia, the other ranging in herds through the solitary deserts of Southern Africa. The former is a wild animal, and is shot by the natives for the purposes of food, the latter is of a disposition susceptible of domestication, and has been seen in London drawing a fashionable curricie. They have both been too little under the observation of men to allow of an interesting biography beyond the notices which have been given of them in the notes to Goldsmith.

THE COW KIND.

THE COW.

WE come now to a class of animals whose principal qualities are connected with their incomparable utility. They do not possess the sprightliness, the intelligence, or the strength of the foregoing class of animals ; they are either peacefully submissive to their condition, or when excited, ungovernably ferocious. Neither can they be termed so beautiful either in shape or motion. Yet they have connected with them many pleasing associations ; and there is no object which could be worse spared in a wide landscape of rich and green fields, expanding to the summer sun, than the animals which convert even the verdure of the seasons to the use of man. There is no picture of contentment, security, and abundance, more complete than that which represents the lowing herd on a shining summer evening, filling the air with a rich perfume from their distended udders, and delighting to be driven homewards by the milkmaid. The advantages derived by mankind from the cow are numerous, many of them essential to the comfort both of rich and poor. Their flesh is the most nutritious diet which we possess. The milk of the cow is rich and salubrious ; when converted into cheese, it is the strengthening nourishment of the most industrious classes in the land. Combs, knife-handles, and a variety of instruments are composed of the horns. From the cartilages, and the finer parings of the hides, is obtained glue ; the hides compose leather ; the fat, candle. Let it be remembered also, that from the cow was first derived the substance which, employed in vaccination, has caused so many to

be thankful for preservation from deadly disease and irreparable injury to beauty.

In every pastoral country the cow forms the principal riches, and the care of the herd the principal employment of the peasantry. The mountaineer of Switzerland lives with his cow almost as familiarly as the Arabian with his horse. He never ill-treats his cattle, nor makes use of a stick or a whip; a perfect cordiality seems to subsist between them, and the voice of the keeper is sufficient to guide and govern the whole herd. Fine cattle are the pride of the cow-keeper who inhabits the Alps; and, not satisfied with their natural beauty, he adorns his best cows with large bells, suspended from broad thongs, in the procuring of which alone he is expensive. Every peasant has a harmonious set of bells, which chime in with the famous *ranz des vaches*. The inhabitants of the Tyrol bring a number of such bells, of all sizes, to every fair kept in the canton of Appenzell. They are fixed on a broad strap, neatly pinked, cut out, and embroidered, and fastened round the cow's neck by means of a large buckle. One of the largest bells will cost from forty to fifty gilders, and the whole peal of bells, including the thongs, will be worth a hundred and fifty gilders; while the whole apparel of the cow-herd himself, even when in his best attire, does not, in value, amount to twenty. The finest black cow is adorned with the largest bells, the next in beauty have two smaller. These ornaments are only worn on solemn occasions, when, in the spring, they are led up the Alps, or removed to another pasture; or when they descend in autumn, or travel in winter, to the different farms where their owners have procured them hay. On such days, even in the coldest season, the peasant appears dressed in a fine white shirt, of which the sleeves are rolled up above the elbow; neatly embroidered braces sustain his yellow linen trowsers; a small leather cap covers his head, and a new milk-bowl of wood, skilfully carved, hangs across his left shoulder. Thus, recalling the picture of the pastoral age of antiquity, the peasant proceeds, singing the *ranz des vaches*, that air which is so indissolubly connected with the thoughts and the love of his home, that the remembrance of it is sufficient to cause, in the Swiss peasant when in distant lands, such a longing for his native scenes, as totally unfits him for every occupation

and enjoyment. On the present occasion, however, he sings it in triumph, followed by three or four goats, then by the pride of the procession, the handsomest cow with the great bell, then by two others with smaller bells, which are succeeded by the rest of the cattle walking one after another, and having in their rear the bull with a three-legged milking stool hanging on his horns. The procession is closed by a sledge, on which are placed all the implements for the dairy.

There is, perhaps, no animal in which the difference of disposition between the male and the female is so marked, as in that now under consideration. The cow, as every one knows, is generally a placid and mild animal, submissive to all the arrangements of the dairy, and obedient to the will of a child. The bull, on the other hand, is liable to be excited to an unmanageable fury; which disposition increasing with his years, renders him generally unsafe, sometimes in a great degree dangerous. As the manly and independent Swiss honour the useful and harmless qualities of the animal in a pastoral festivity, so less humane nations have taken advantage of the ferocity to which the bull may be excited, to furnish a sport suited to their own dispositions. The Portuguese and Spaniards have been especially devoted to those barbarous sports, which they call bull-feasts. "I have been present," says Sir W. Wraxall, "at these entertainments at Lisbon in 1772, which then distinguished it from all the other capitals of Europe. They were already extinct in Spain, where Charles III. had abolished them on ascending the throne, in 1759. Joseph and the Queen his wife, on the contrary, nourished the strongest partiality for these games of Moresco origin, which they seldom failed to attend. I have seen the king present there, though one of his eyes was bandaged and swelled from the effect of a spark that had flown into it from the flint of a fowling-piece. The Portuguese bull-feasts were celebrated in a large wooden amphitheatre, capable of accommodating many thousand persons, containing benches below which were surmounted by tiers of boxes. The arena was spacious; the champion entered gaily dressed, mounted on a spirited horse, held a spear in his hand, and made obeisance to the corporation of Lisbon. From sixteen to twenty bulls were made the victims of this cruel sport every Sunday, and sometimes this number was killed in the course of three hours. Circular

pieces of leather were fastened on their horns, to prevent their ripping up or mortally wounding the combatants, yet I have witnessed many very severe, and several nearly fatal accidents. Prodigious dexterity and vigour were displayed by some of the horsemen, particularly by a Castilian, who frequently made his appearance, and whom I have seen drive his spear at the first thrust into the heart of the animal, when furiously running at him—the amphitheatre then rung with applause. Several of the men who fought on foot exhibited extraordinary agility and coolness, in eluding the rage of the incensed animal; but it must at the same time be remembered, that there were commonly six or seven combined, all armed with long spears. I have seen women engage the bull, ride up and wound him. It frequently happened, that the bulls wanted disposition for the contest. In these cases, the spectacle became rather a butchery, than a combat; but some of them would not have disgraced a Roman amphitheatre if, as I have been assured, was customary a century earlier, their horns instead of being blunted or covered, had been filed and sharpened to a point.”

Such is a general account of the formalities of a bull-fight. The following relation of one taken from an account lately published, presents a more minute and lively description of the various performances of the assailant, and more particularly of the behaviour of the injured animal. As it may be expected that such sports will be less frequently witnessed for the future, we shall give the narration in the words of the describer, hoping that it may soon be an account of things that are passed and gone.

“The circus of Ronda is one of the largest in all Spain. It contains two rows of boxes. The diameter of the ring, clear of the wall that protects the people, is 190 feet. Each box has seven seats, and the whole contains about five thousand people. The price of admission to the lower circle is about two shillings English, that to the upper about fifteen pence. On entering the circus through the grand gate, you see at the opposite side similar folding doors to those which admit you. Through these come the horses from the stables, and through them also the mules drag those animals that are killed in the ring. The building is open at the top, except that a tiled roof extends over the boxes, very insufficient, however, to protect all the audience from the sun. In front of the benches all round extends a

stone wall four feet and a half high. You may walk between this and the people three or four abreast. Its use is to protect the boxes from the uncereemonious visit of the bull, which is frequently attempted; however it is not always a security against the activity of the animals. They have been known to jump into the centre of the box more than once, where they produced a sensation amongst the well-packed people not easily forgotten. During the greater part of an hour we here had an opportunity of observing the busy and variegated scene around us; and although that time might appear long to one seated on the bench of expectation for a bull-fight, I confess I felt it but too short, engaged as I was in observing the brilliancy and variety of costume that moved before me. The well-dressed of the assembly always make it a point to lounge in the circle before the combat begins, and it seems to be a pleasure to them only inferior to the fight itself to strut round the circle, gazing at the crowded benches, and almost bursting with the consciousness of their elegant appearance. The peasants, on the other hand, mingle in the promenade from curiosity; the middle orders of the Andalusians, and the peasantry themselves, even to the goatherd of the highest mountain in the Sierra, walk where others walk, and do as others do, as far as lies in their power, without conceiving that they have a whit less right than their better neighbours to do so. From this it may be inferred that the promenaders in the circle were of a very mixed nature; but it was this very variety of quality and appearance which gave the scene, in my eyes, its greatest attraction. The humblest farmer, nay, the merest peasant, presented to you a figure, bold, unrestrained and graceful. Although their garments might have been neither new, nor fine, there was not a fold in them unbecoming. Of ladies there were but few; they generally chose to keep their seats, from which they dispensed their glances to the passing promenaders. A few of the mountain gentry too, who live by levying contributions on the road, mingled in the scene with their coarse, dark, and somewhat ragged dresses, their unwashed faces, and unshorn chins; nor was the dusty muleteer, nor the cowed monk, nor the ragged water-seller with his jar and glass, wanting to relieve the eye from brighter objects. Our box, as I said before, was on the right as you entered the circus, and next to the royal box. As the door through which the bulls

made their appearance was under the latter, we were close to them on their first rush, and found an excellent place to get a near view of the countenances both of the bulls and the picadors. We also fronted the doors by which the procession entered the ring to open the sports of the day. The order in which it appeared was this :—eight mounted dragoons, at the sound of a trumpet, rode into the ring, and, dividing into double files, cleared the arena of the promenaders ; on doing which they retired at the same gate by which they entered. All was silence, all was clear in the ring, and the seats in both rows densely packed with anxious spectators. The bright sun enlivened every thing ; silence gave an awful grandeur to the scene, expectation heightened the interest of the moment. The trumpet again sounds, and the three mounted picadors ride slowly forward with spear in hand, and ready for the combat. Then follow two matadores and six banderilleros, two abreast ; lastly are led in, three mules covered with little bells and ornamented harness. The whole advance towards the royal box, and respectfully bow before the authorities of the town therein seated, who graciously receive the salute. The trumpets then sound, and the combatants take their respective stations. One picador draws up his horse within twenty yards of the door from which the bull is to be admitted, and close to the wall of the ring ; the horse's head rather turned towards the place from whence his antagonist is to spring. The second picador places himself behind the first, but nearly quarter-way round the circle, so as to be ready to receive the bull when his attack on the first picador terminates, and the third picador is behind him again. The banderilleros throw themselves at various points of the ring, so as to be able to dispose of their exertions as may be required, but two generally stand near to each horse, to draw off the bull by their flags in proper time. The dress of the picadors and banderilleros is particularly imposing, and their whole appearance gives a grand and chivalric character to the scene. Those who exhibited before us were dressed as follows :—One picador, an able brawny veteran, of fifty-five years of age, wore a scarlet jacket, of a Moorish cut ; his hair, which was powdered and clubbed behind, in the old Spanish fashion, was surmounted by a buff-coloured hat, ornamented by a cockade of pink and yellow ribands. This sat rather on the side of his head, and was fastened by a leather strap

under the chin. A silk sash was tied round his waist, and his waistcoat was of light blue silk, embroidered like the jacket, with silver. The covering of the thighs and legs down even to the toe was all of strong yellow buck-skin leather, which, in order to protect the picador from the weight of the horse and the concussion in falling, was lined with cork; but although this gave the limbs of the man a somewhat larger bulk than the natural, yet mounted and at a distance, it did not destroy the appearance of proportion. He wore thick gauntlets, and his saddle, which was buff-coloured, rose high before and behind him. His stirrups were cases for his feet, and his horse, although worn out, still held the erect and noble carriage of the best of Andalusia's breed. The second picador was a young man, and similarly dressed. The third picador was a man of middle age, large and stout, and only differed in dress from the others described, by a black velvet jacket embroidered with gold. His horse was piebald, cream and brown coloured, the remains of a most beautiful animal; and his conduct through the awful struggle of the combat gave proof that he was as brave as he had been beautiful. The banderilleros wore different coloured jackets and short breeches, beautifully embroidered. They had nothing on their heads, the hair fastened by a comb behind; light silk sashes surrounded the waist, and white silk stockings with spangled shoes set off their well turned limbs. Nothing struck me so forcibly as the appearance of those picadors and banderilleros as they entered the ring, all my early ideas of chivalry and romance rushed upon me, and I felt myself, as it were, in the reality of my former cherished imaginings. There was something in the scene associated alike with the ancient classic games, the sanguinary bull-fights of the Italians in their best days, and the tilts and tournaments of knight-errantry, that threw a fascinating colouring over it; I can no more forget the sensation than I can describe it. All things in readiness for the attack, the signal to commence was given by the authorities in the royal box: the trumpet sounds, and as it ceases, leaves not a murmur behind—every thing is still as death. The picadors are fixed firmly in their saddles,—the banderilleros are at their various points—the countenances of the multitude become strained with expectation—hearts palpitate, and every one holds his breath. The angry murmurs of the bull are now heard deep and portentous—the bolt is

slipped—every eye is on the gates. In a moment they were opened, and the bull darted into the ring. Perceiving the mounted picador on his left, he without a pause sprang at him, but the well-directed spear received the enraged animal, and although the shock had almost pushed the horse on his haunches, the rider's arm succeeded in turning off his assailant, who, galled and foiled in his fiercest charge, became furious, and flew at the next horseman with astonishing rapidity. The hardy veteran stood prepared, and received the attack well with the spear, but although he turned the bull off for the moment, the charge was renewed before he could draw back his spear, and the horns were buried in the bowels of the horse, which, together with the rider, were lifted by main strength clear off the ground, and both fell. Shouts filled the arena. The bull continued to follow up his success, and gored with all his might, but the picador lay beneath his horse, and thus escaped the deadly thrusts of the horns; and he had nearly lost his life by the bull lifting the carcass of the horse right upon him, had not the banderilleros succeeded in drawing off the assailant by the flags which they waved between his eyes and his fallen foe. 'The picador is killed!' was the cry, and we all supposed it to be the case; however, he was lifted from the ground, and although somewhat lamed by the fall, soon appeared again in the ring mounted on a fresh horse, for the other never rose, he had been killed on the instant. The bull having made his two charges, pursued the active banderilleros, whose flags alone protected them from destruction, by attracting the bull, whose efforts being directed to the glaring colours, passed by the real enemy. They were as the fairies in the legend, and the bull, as he who pursued them—ever before his eye, ever close to him, yet ever vanishing and never to be touched. Throughout the ring he chased the imps, now one, now another, and often it became a race for life and death; but the wall was the man's resource, and when the bull with his bended neck had the point of his powerful horn at the fugitive's back, the latter flew over the wall, and disappeared, leaving the animal in amazement, who now stopped and looked up at the crowded benches before him, with rage and disappointment; pawed the ground, and backing himself a few paces with tail erect, seemed as if about to spring

in among the people. Now approached the courageous picador on his flank, with spear couched, and watching eye: the bull turns, and like lightning darts upon the horse; but the firm arm receives him—the point is in his shoulder, and it raises the ponderous animal on his haunches—the noble horse keeps his ground, and the bull is turned off successfully. A universal shout of triumph greets this second victory. But the bull has not paused; he runs at the next, who is the remounted antagonist, and before the shout of joy has ceased, this new charge is successful—both horse and rider again fall to the ground. The banderilleros draw off the victor; the picador retires for a third horse, and the fallen is left to die. Words could scarcely express the feelings of triumph, satisfaction, and determined daring, as did the attitudes and aspect of the courageous bull at this period of the fight. He took the centre of the ring, stood with head and tail erect, surveyed his enemies with a look of defiance, while they separated and cautiously clung to the protecting wall, from which, if one dared but to advance a single step, the threatening movement of the bull caused him quickly to resume his safety. Fresh-mounted for the third time, the vanquished picador appears in the ring, and burning to retrieve his reputation, moves boldly up to the bull. Again the rush is made, and again are the horns buried in the writhing horse; the bull is a third time the victor. The second horseman now approaches, and stands boldly before him. The combatants survey each other a moment—the bull moves—the horse still faces him. At length the spear receives the shoulder of the impetuous animal, and turns him off, roaring and disappointed, amidst the huzzas of approbation. Now came the banderilleros, each bearing two darts, winged with cut paper of various colours. They carried no flags, and from this circumstance were exposed to great danger in their attacks; a quick eye and a light foot were their only protection, and certainly this protection they possessed amply; for never did foot or eye turn off the close bolt of death with more deserving eclat than on this occasion. The darts are only thirty inches long; they are green ash sticks, with a spike at the end, bearded at one side so as to hold when once stricken into the skin. The banderillero steps lightly up to the bull, within a foot of his horns, and as he instantaneously plants the two darts in his neck, he jumps aside,

escaping miraculously from the quick and desperate plunge of the beast. Again the bull receives the darts—and again and again: one after the other the active banderilleros meet him in the midst of his most frantic boundings, and fly about him like ‘spirits of air,’ whom all his might and rage cannot reach. One cannot help thinking, on seeing this wonderful display, that if the noble animal thus persecuted had but one millionth part of the cunning of his active tormentors, he would make short work with the whole—nay, one could almost wish such a consummation, so treacherous and cruel is this attack. The history of the correo, however, is not without some records of such just punishment. It is, if not the only, at least the most exceptionable part of the exhibition. The bull thus tormented almost to madness—bleeding profusely, his massive neck made still thicker by the swollen wounds of the darts, yet unconquered, and still bent on resistance and revenge—finds a momentary respite from persecution by the sound of the trumpet calling off the banderilleros. One of these, the most experienced, now walks up to the Royal box, bearing a drawn sword and a coloured flag. He bows to the authorities, declares he will meet the bull single-handed, and bring him to his feet. He then flings into the air his little black silk-cap, bows gracefully, and advances at once singly to the raging animal. He is called a *matador*, and the one who officiated in the combat I am describing, was one of the most experienced in all Spain: which, however, could hardly be said of his bungling colleague. He was about thirty years of age, above the middle stature, and of long, dark, grave, and truly national visage. His black hair was plaited, and turned up behind, and his limbs were light and athletic. His step was firm and elastic, and he was cool and collected in his demeanour. Like the chivalric Italians of the fourteenth century, he met the bull single-handed, and, although his flag gave the odds in his favour, still his attack might be said to be the most dangerous, as well as the most equal in the whole fight. So cool, so determined, so prepared seemed the man, as he stood before the bull, that the fierce and maddened animal paused and surveyed this new enemy with recollected caution. He seemed, as it were, to acquire reflective powers, and to be, for the first time, aware of the necessity of discretion. As long as the bull remains inactive, the *mata-*

dor can have no chance of inflicting the mortal wound; it must be the bull's own strength that is to be turned to account, for his death; nor would the chances be more favourable if the bull were to rush at the matador directly. Although the sword is unusually long, it would not be sufficient to reach the life at the point to which the matador directs the blade, which is between the shoulder-bone and the neck, or anatomically speaking, between the scapula and the ribs; that is to say, the bull's horn would reach the ribs of the matador before the sword's point would reach those of the bull's. But to insure success, the flag is used. The matador awaits until the bull is about to rush, and he urges him by every menace to make this rush. As soon as he sees the animal preparing for it, he displays the flag before it, standing a little on one side; the bull darts at it, and while in the act, the matador pushes the sword home to the hilt, and leaves it in its bloody sheath. It is in his heart. The crimson life-tide gushes out both at the wound and at the mouth; the beast reels quickly round, and with a cough and a groan falls lifeless. This was the case with the bull in the fight I describe. From the moment he received the wound until he was dead, a dozen seconds did not elapse. The three mules are now brought in, the traces yoked to the horns of the fallen combatant, and his body is dragged in triumph out of the ring, after which the bodies of the dead horses are removed. In a few minutes the trumpets sound the signal for the next course, and the clamour that naturally follows on the conclusion of the first, subsides into dead silence. It would be monotonous to go through a detail of the subsequent attacks. Suffice it to say, that six bulls were killed, and about as many horses, in the first day's sport, and that the veteran picador, who was so unsuccessful in the first attack, recovered his reputation gallantly. And it is worthy of remark, that the noble old piebald horse, that bore his rider so well in the onslaught of the first fight, left the arena with only one wound of any consequence; this was a deep gore in the breast, which was not of any immediate danger; several slight wounds were, however, discernible on his haunches. It is worthy of remark, because it seldom happens that a horse lives out the whole of a day's combats. This excellent animal bore away that honour, and with his masterly rider, was loudly cheered as he left the ring."

The bull-feasts held at Rome in the fourteenth century, were of a more sanguinary character than those of modern Spain. The nobles of the city, and often the chiefs of the rival houses of Colonna and Ursini displayed their rivalry in the arena, before the fairest of the Roman ladies. The bull was there encountered by one champion on foot, armed with a sword. The fight was for life and death, and the horned combatant usually had the best of it. An Italian writer states, that, at one fight, no less than eighteen young men of the best families in Rome were killed. But the description now given of a particular combat, may be received also as a description of bull-fighting in general.

The cruelties perpetrated on this class of animals have not however been confined even to such customs as are above related. The account given by Bruce, of a practice common in Abyssinia, seemed so monstrous, that rather than believe it, the public at first were disposed to account it the fiction of a traveller—subsequent inquiries have ascertained the fact, and while they have proved the veracity of the narrator, they have fixed the stain of inhumanity on the Abyssinians. We shall present the reader with the statement as it is made by Bruce himself:—“Not long after our losing sight of the ruins of Axum, we overtook three travellers driving a cow before them; they had black goat skins upon their shoulders, and lances and shields in their hands; they appeared to be soldiers. The cow did not appear to be fitted for killing, and it occurred to us all that it had been stolen. We saw that our attendants attached themselves in a particular manner to the three soldiers that were driving the cow, and held a short conversation with them. Soon after we arrived at the hithermost bank of the river where I thought we were to pitch our tent. The driver suddenly tripped up the cow and gave the poor animal a very rude fall upon the ground, which was but the beginning of her sufferings. One of them sat across her neck holding down her head by the horns. The other twisted the halter about her forehead, while the third, who had a knife in his hand, to my very great surprise, in place of taking her by the throat got astride upon her belly before her hind-legs, and gave her a very deep wound in the upper part of the buttock.—Upon proposing to my men that they should bargain for part of the cow, they answered, what they had already learned in conversation,

that they were not then to kill her—that she was not wholly theirs—and that they could not sell her. This awakened my curiosity; I let my people go forward, and staid myself, till I saw with the utmost astonishment, two pieces thicker and larger than our ordinary beef-steaks cut out of the higher part of the buttock of the beast. How it was done, I cannot positively say, because, judging the cow was to be killed, from the moment I saw the knife drawn, I was not anxious to behold the catastrophe, which was by no means an object of curiosity: whatever way it was done, it surely was adroitly, and the two pieces were spread upon the outside of their shields. One of them still continued holding the head, while the other two were busied in curing the wound. This too was done not in an ordinary manner: the skin which had covered the flesh that was taken away was left entire, and flapped over the wound, and was fastened to the corresponding part by two or three small skewers or pins. Whether they had put any thing under the skin, between that and the wounded flesh, I know not; but at the river-side where they were, they had prepared a cataplasm of clay, with which they covered the wound; they then forced the animal to rise, and drove it on before them, to furnish them with a fuller meal when they should meet their companions in the evening.*

These are savage and inhuman abuses of a most extensively useful animal. Nor are the advantages received from this class confined to the nourishment which they directly yield to the life of man; in many countries their actual services have been called into request for such offices as are with us assigned to the horse. They were the first that dragged the plough, and an ancient proverb represented the adaptation of the ox to this use as the perfection of fitness.† They are in some countries, particularly in South Africa, employed in drawing those waggons, which convey the traveller or the merchant over the sandy or stony desert, and there they choose their steps and pursue their course with a surprising sagacity. In Egypt, Burckhardt saw cows employed in drawing buckets of water from deep-sunk wells. Even the ferocity of the bull has been so far overcome, that he has been used as a racer. In 1794, at Low Haughton in

* Travels to discover the source of the Nile.

† Ut bos aratro.

Derbyshire, a race was run between an ass and a bull, each animal having a rider properly equipped with spurs and whip. The bull, which might not have been obedient to a bit, had a ring through his nose, from which chains were hung on his horns and attached to a bridle. The bull in this case proved more swift than the ass.

Like the dog, the bull is very readily affected by any thing extraordinary in the human voice or gesture. A farmer, through one of whose parks there lay a thoroughfare, was desirous that it should be abandoned; and for this purpose, put a mischievous bull to graze in the park. The first who ventured to traverse the path was a crazy woman, who, when the bull approached, made such uncouth gesticulations with her head and hands, and uttered such hideous sounds, that the terrified animal scampered off. The thoroughfare soon became as much frequented as it had been before.

Some share even of sagacity must be allowed to this animal. The cattle of South America, especially in the neighbourhood of Buenos Ayres, give indications of approaching rain, before the signs of it are visible in the atmosphere. A traveller relates, that in passing from this place the weather had been long dry, almost every spring had failed, and the negroes were sent in all directions to discover fountains. Soon after, the cattle began to stretch their necks to the west, and to snuff in a singular manner through their noses, which they held very high in the air. Not a cloud was then seen, nor the slightest breath of wind felt. But the cattle proceeded, as if seized with a sudden madness, to scamper about, then to gather together, squeezing closer and closer, and snuffing as before. While he was wondering what was to be the result of such extravagant motions, a black cloud rose above the mountains, thunder and lightning followed, the rain fell in torrents, and the cattle were soon enabled to quench their thirst on the spot where they stood.

The cow is well known to have a strong affection for its young. When the calf is removed from the mother, especially if the two have been kept some time near each other, the latter testifies its grief by a mournful lowing, refuses to eat its food, and to yield the wonted abundance to the milker. The behaviour of cows in such circumstances in Hungary, has been re-

marked by Dr Bright :*—" We met two cows," says he, " wandering wildly in the forest, looking in every direction, snuffing the air, and lowing continually. They had just lost their calves. The keeper gave me a singular account of their conduct under such circumstances. The mother no sooner perceives her loss than she appears distressed ; the first day she seems to search for her calf with hope, the second, she becomes disappointed and frantic, and the third, still pursues her solitary search, after which she returns to the herd, gradually becomes tranquil and composed, and associates again with her former companions." The cow has been known also to associate with a pig, to defend it from the annoyance of dogs, and give symptoms of congratulation on its safety. She has more frequently taken a kind of maternal charge of the lamb, and afforded it the nourishment of her milk.

We know not whether the maternal solicitude exhibited by the cow has contributed much to render it that object of veneration among the Hindoos which it assuredly is. While, contrary to the common notion here, the purest Brahmins are allowed to eat mutton and venison, while fish is permitted to some castes, and pork to others, it is considered a grievous, in many cases a capital crime, to kill a cow or a bullock for the purpose of eating. The cow has a most honoured place in a Brahminical asylum for animals. " At Broach," says Bishop Heber,† " is one of those remarkable institutions which have made a great deal of noise in Europe as instances of Hindoo benevolence to inferior animals. I mean hospitals for sick and infirm beasts, birds, and insects. I was not able to visit it, but Mr Corsellis described it as a very dirty and neglected place ; which, though it has considerable endowments in land, only serves to enrich the Brahmins who manage it. They have really animals of several different kinds there, not only those which are accounted sacred by the Hindoos, as monkeys, peacocks, &c., but horses, dogs, and cats ; and they have also, in little boxes, an assortment of lice and fleas. It is not true, however, that they feed these pensioners on the flesh of beggars hired for the purpose. The Brahmins say that insects as well as the other inmates of their infirmary, are fed with vegetables only, such as rice, &c. How

* Travels in Lower Hungary, p. 156.

† Journey through the Upper Provinces of India, vol. iii. 67.

the insects thrive I did not hear ; but the old horses and dogs, nay, the peacocks and apes are allowed to starve ; and the only creatures said to be in any tolerable plight, are some milch cows, which may be kept from other motives than charity."

The Zoological Society possesses a remarkably beautiful species of bull, called the Brahmin Bull. In India this animal is almost useless, allowed to wander about at his will amidst the rice fields and gardens, and caressed by the natives with religious veneration. The Committee of the Zoological Society are anxious that there should be some stock from this noble animal, the only specimen in England. It is possible that this gentle and beautiful creature might become the founder of a race superior in docility to the common ox.

The cow varies in appearance in different climates and circumstances ; but of these varieties a full account is given in the Natural History and the Notes appended.* We shall only notice a very remarkable specimen belonging to a Frenchwoman, which she said was brought from Africa when a calf, and which was lately exhibited in various parts of the Continent and in London. Its hair was short and silky, the colour of a yellowish white ; and on the back of the neck was a hump or swelling. The aspect of the animal was usually mild and docile ; but what peculiarly distinguished it was the expression of the eye when it was irritated. On these occasions the eye rose more than one half above the orbit, bearing a resemblance to a cup or ball, enabling it to see on all sides ; and the iris, which was naturally of a pale blue colour, changed from that to a very deep crimson.—We proceed now to give notices of animals which, though possessing the general characteristics of the cow, are easily distinguished from it both by their appearance and their habits.†

* Vol. i. 520 and 523, and n.

† There is an animal called the musk-bull, about the size of a small cow, and smelling powerfully of musk. They are very jealous, and the males are often found dead,—and those alive bear but a small proportion to the females found in a herd. A specimen was presented by Captain Parry to the Edinburgh College Museum. He found them as far north as Melville's Island. For these and other particulars respecting it, see the Notes to Goldsmith, vol. i. p. 540, 541.

THE ZEBU.

THE difference between this animal and the domestic cattle of India, of which country it is a native, may be rather ascribed to the influence of climate and habit than to any original diversity in the stock. The Zebu is about the size of our domestic cow, the forehead flat or slightly depressed. It is nearly square in its outline, its height equal to its breadth, and bounded above by a prominent line forming an angular protuberance passing directly across the skull between the bases of its horns, which sometimes stand out, or pointing backwards, with their tips slightly inflected. But that which chiefly distinguishes it is a large fatty hump, of about fifty pounds weight, on the top of the shoulders. Its usual colour is cream-yellow, or milk-white. It is of a gentle and tractable disposition, and is used as a beast of burden in India. In some places it is used like the horse, being either saddled, ridden, or harnessed in a carriage, and performs tolerably long journeys at the rate of from twenty to thirty miles a-day. Their pace, like that of the ox, is a brisk but easy trot. Instead of a bit, they are guided by a ring passed through the cartilage of their nostrils, and to it is fastened the cord that serves as a bridle. Those belonging to nabobs and men of wealth, have their horns gilded and are richly decorated with embroidered trappings.

THE BISON.

THE bison is the general name of the cow with the hump, and though this animal breeds with the cow, in external appearance it is remarkably different. It has an elevated forehead, of much greater breadth than length, and bounded above by an arched line passing across the head, about two inches behind the roots of the horns. The head is extremely large in proportion to the size of the body, supported by strong and powerful muscles. The eyes are small, black, and piercing; the horns are short, black, and very thick at their base, placed widely apart, directed outwards, backwards, and upwards, slightly curved towards their

tips. Its withers are elevated in the form of a large lump, extending nearly to the middle of the back, to which point it gradually slopes; thus giving the fore parts a very strong appearance. This protuberance does not consist merely of flesh and fat, but is supported by an actual elongation of the spinous processes of the vertebræ beneath. This lump, as well as the head, neck, throat, and shoulders, are covered with a long shaggy coat of black woolly hair. All the other parts of the body are covered with short, thick set, curling hair, which becomes woolly in winter, and falls off in summer; the general colour of the hair is of a deep blackish brown, but the hinder parts are nearly black. The legs are short, firm, and muscular; the tail is very short, measuring only a foot in length, and is nearly naked, except at the tip, which is furnished with a tuft of long black hairs. The bison differs from the common ox, by having two additional ribs; the ox is well known to have but thirteen, while the bison has fifteen. The female is smaller than the male, more slender in her make, and her mane is much shorter.

These animals inhabit all the wild tracts of North America, from Hudson's Bay to Louisiana, extending southwards to the frontiers of Mexico, increasing in size as they diverge from the north. In northern situations they are only to be met with in small herds, while, in the immense and fertile savannahs of the south, the herds extend for miles. Captains Lewis and Clerk say, "Such was the multitude of these animals, that, although the river, including an island over which they passed, was a mile in breadth, the herd stretched, as thick as they could swim, completely from one side to the other." And in another passage, "If it be not impossible to calculate the moving multitude which darkened the whole plains, we are convinced that twenty thousand would be no exaggerated number."

Bisons generally prefer the open plains, and do not resort to woods, except when attacked: they seldom attempt to defend themselves, but almost invariably take to flight. They are extremely fleet, and their sense of smell is so acute, that they discover an enemy at a great distance, so that it is difficult to get near them. They are frequently hunted by the natives, who live principally on their flesh. When the hunters kill the old dams, they pay no attention to the calf, as it is sure to remain by its dead mother. Instances have been known of a mother

entering the town of Cincinnati, followed by its calves. Many of them fall victims to wolves and grizzly bears. Their beef is said to be of an excellent quality, and of a very superior flavour.

A pigmy bison, exhibited by a dealer in curiosities at Hastings, and which was said to have belonged to Count Bournon, may be mentioned, not as any illustration of the animal, but as a remarkable instance of those impostures, of which even the student of natural history requires to be aware. It was certainly unique in its kind, being only about eight inches high, whereas the bison possesses the stature of an ox, and will weigh sometimes twenty or thirty hundred pounds. This little model was quite proportionate and symmetrical, perfect in horns and coat, and a complete miniature of the animal which it represented. It appeared to a person who took some pains to examine it, to have been grounded on a well-formed model of wood; covered first of all very tightly with the skin of a pug dog of corresponding size, the long hair about the head, hunch, and belly, being added with consummate skill from the skin of a young bear: while the horns and hoofs were formed of the black horn of the buffalo; all, however, so admirably put together, as to stamp the contriver as the first of his art.*

THE BUFFALO.

WERE we to attend to external appearance only, we should readily conclude, that the buffalo is an animal less formidable than the bison. It does not possess the hump of the other, nor the shaggy neck, which would lead us to expect that it should be as the lion of the ruminating tribes. Yet the buffalo is the strongest and fiercest of his class, and in oriental countries, where he is brought into the arena to contend with the most savage animals of the desert, he is formidable to the lion, and almost invariably conquers the tiger.

The buffalo has a strong resemblance to the common ox. His horns are compressed, and directed laterally, with a ridge in front, reclining towards the neck, and the tips turned up. The

* London's Magazine of Natural History, vol. ii. p. 218.

forehead is convex ; the ears are large and hanging ; the hair is nearly black, and of a coarse texture ; and the tail tufted at the end, like that of a bull.

This animal is a native of various countries of the East. They are common in Western Hindostan, and also in Africa. The latter breed differs from those of India, particularly in the horns, which are very thick and rugged at the base. The horns are of great size, frequently measuring three feet in length. The body and limbs are thick and muscular. The head hangs down, which gives it a gloomy and fierce aspect. The buffalo is now very common in many parts of Germany and Hungary, where it is used as a beast of draught.

These animals are naturally very fierce ; and it is dangerous to approach the situations where they feed, in their native wilds ; for, differently from most other ruminating animals, they will fearlessly attack a man ; and, in this case, there is no chance of escape. When the buffalo encounters a person, he runs against him with his horns, and having thrown him down, tramples him with his hoofs and knees, and tears him to pieces with his horns.

In Africa, the buffalo is hunted by the Caffres, at which terrible scenes often take place. It is likewise hunted in India, and the following is the description of a hunt which took place in that country :—On the morning of the 2d of March, 1813, a herd, consisting of seven wild buffaloes, with one calf, was suddenly discovered at Keshennagar, in Hindostan. Four gentlemen on horseback commenced a pursuit of these animals with much ardour. After having followed them three miles, the young one separated from the herd, and joined some tame cattle belonging to a neighbouring village. It was killed by the party, who afterwards continued the pursuit of the old ones, when they were overtaken in a high grass jungle four miles farther off. They were quickly driven from this place, and closely followed for more than six miles over a plain : at length the party succeeded in separating one buffalo from the herd. Here the encounter began. After receiving several wounds, he still continued his flight ; he suddenly halted, and kept his pursuers at bay ; after a short interval he again fled, and was pursued and wounded as before, carrying the spears sticking in his back and sides for several hundred yards. Lieutenant White, of the 15th

Native Infantry, rode up very close to him, threw his spear, and wounded the animal in the loins. His horse being much exhausted, was unable to wheel round before the buffalo turned about and charged with such vigour, that both horse and rider were overthrown, and lay many yards distant. Fortunately, the lieutenant received no material injury; and when the animal approached he had the presence of mind to lie flat on his back. The beast approached, but stood at his feet, without offering any violence. The other sportsmen called repeatedly to their companion to arise and escape. For some time, however, he disregarded the advice, fearful of the consequences; at length, in compliance with their entreaty, he arose; the buffalo instantly rushed forward, but Mr White escaped by throwing himself down; while the enraged beast, missing his aim, fell on the ground, his horns grazing Mr White's back, as he passed over him. After this lucky escape, he seized the favourable opportunity, and regained his horse. The buffalo then took refuge in a tank; and when his former opponent joined his companions, who were standing upon the bank, the animal issued forth, and selecting Lieutenant White for the object of its vengeance, pursued him to a considerable distance. The animal was now rendered quite furious, and attacked every thing within his reach, such as cows and dogs. Unfortunately, an old woman returning from market passed, and became the victim of his rage; she was taken up without any appearance of life, having her arms broken, and many wounds. The cavalry being, from fatigue, *hors de combat*, could not renew the attack; and the buffaloes, whose system was retreat, having gained a victory, now continued their course without molestation.

THE SHEEP KIND.

THE SHEEP.

DESCENDING in the scale of the domesticated animals we come to the sheep, less marked than the former by noble and powerful qualities, but distinguished by its universal utility, its meek subservience to the will of men, and the many pleasing images with which it is associated. The horse serves mankind by its labours only ; the cow-kind by their produce, and frequently by their labours ; the sheep by its produce only. Yet, in those climates in which the sheep is reared in most abundance, there are few animals that could be worse spared. There, scarcely an individual exists who does not owe the comforts of warmth, and the security of his health, to the woolly covering that once defended the sheep.

That fleece which has rendered the sheep so valuable to man, enables it to endure greater severities of climate than most other animals ; though sagacious in its selection of food, it is capable of subsisting on a very barren soil ; and these circumstances have rendered it particularly the inhabitant of bleak and mountainous regions. There they endure cold and snow that would be fatal to most other quadrupeds. They seem to have an instinctive notion of the approach of a storm, and take refuge by the side of some hill or projecting cliff. On these occasions they crowd together ; frequently subsist whole days beneath a covering of snow ; and the shepherd, after having looked with dismay on an expanse of snow on which no living creature was visible, has been delighted to see his whole flock rush forth on the breaking up of an aperture in a drifted pile.

The sheep has been said to be an animal without any courage. It may be more properly characterised as one much affected by circumstances; disposed to be implicitly submissive to the shepherd, and, when under his protection, trusting to him for its defence; but, in other circumstances, and when obliged to rely on its own resources, capable of exerting an energy and sagacity corresponding to the powers with which it has been furnished by nature. On extensive mountains where numerous flocks range at liberty, and, generally speaking, independent of the shepherd's aid, they exhibit a very different character; and a ram or a wedder has been frequently seen to attack a dog, and to come off victorious. When the danger is more pressing, they have recourse to the collective strength of the whole, drawing up into a compact body, and presenting to every quarter, an armed front which cannot be attacked without danger to the assailant. In the mountainous parts of Wales, where the sheep enjoy so great a share of liberty as to render them very wild, they do not always collect into large flocks, but frequently graze in parties of from eight to ten or twelve, of which one is stationed at a distance from the rest to give notice of the approach of danger. On observing any one approach, at the distance of two or three hundred yards, the sentinel turns his face to the enemy, keeping a vigilant eye upon his motions, and allowing him to advance as near as eighty or a hundred yards; but, if the suspected foe attempt to come nearer, the watchful guard alarms his comrades by a loud hiss, or whistle, which is repeated two or three times. Upon this signal the whole party scour away with inconceivable rapidity, and soon gain the most inaccessible parts of the mountains. When safety cannot be obtained by flight, a ram will often make a stand against a more powerful animal. If necessary, the whole flock joins in the resistance; they form a dense body, having the females and young in the centre, wait till the enemy is within a few yards; then a party of the rams darts on the assailants, and the fox or dog will not generally be left to vaunt a successful attack.

As we are defending the suspected courage of the sheep, we may here adduce a notice of a petulant one, though, from the remark with which it is introduced, it will be seen not to be so conclusive as the proofs adduced above. "The guanaco," says Haigh, "is generally classed under the head

of South American sheep, but I think it is more like a camel; it has memory and affection, as I shall give an anecdote to prove. I sent a pair of these animals as a present to a friend of mine, who has an estate in Surrey. The male died on the passage, but the female arrived safe in the London docks. I bought them of an Indian market-woman when they were only a few months old. Whilst they were in my possession, she came to see them once a-week, and they always showed great joy when she spoke to them, and would leap about and endeavour to get near her. Arrived in England, the female after some time took a fancy to one of my friend's carriage horses, and when he was turned out to the grass, she would not allow any one to approach her favourite. When the carriage drove down the sweep, she would accompany her friend, and proceed bounding down the drive by his side, and become highly indignant when the lodge-gate was closed against her. After committing a variety of freaks, such as knocking down the groom, and on more than one occasion entering the kitchen and frightening the cook from the spit, my friend voted 'Miss Fanny' unmanageable and returned her to me, and I placed her under the tuition of Mr Cross, head master of the academy for wild beasts, at Exeter change."*

The more remarkable qualities of the sheep, however, are innocence, and the most implicit submission to the will of the shepherd. These are the qualities which have rendered them such an impressive feature in every scene of simple and innocent life. The shepherd has but one object—to preserve his helpless charge from injury; they seem to have but one feeling, implicit confidence in his protection. His life, therefore, is one either of lonely meditation, as in the summer when the care of the sheep is comparatively easy, or of solicitude in winter, when their lives as well as his own are frequently in peril. The most marked character of the sheep, is natural affection, of which it possesses a large share. It has few wants, and fewer expedients. The old black-faced or forest breed, have more powerful capabilities than any of the finer breeds that have been introduced into Scotland. The anecdotes furnished by Hogg of the affectionate character of the sheep, are confined to this class; but as

* Haigh's Sketches of Buenos Ayres, &c.

they are pleasing, and written in the best style of that lively author, we shall here quote them :—" So strong is the attachment of sheep to the place where they have been bred, that I have heard of their returning from Yorkshire to the Highlands. I was always somewhat inclined to suspect that they might have been lost by the way. But it is certain, however, that when once one or a few sheep get away from the rest of their acquaintances, they return homeward with great eagerness and perseverance. I have lived beside a drove-road the better part of my life, and many stragglers have I seen bending their steps northward in the spring of the year. A shepherd rarely sees these journeyers twice ; if he sees them, and stops them in the morning, they are gone long before night ; and if he sees them at night, they will be gone many miles before morning. This strong attachment to the place of their nativity, is much more predominant in our old aboriginal breed, than in any of the other kinds with which I am acquainted. The most singular instance that I know of, to be quite well authenticated, is that of a black ewe, that returned with her lamb from a farm in the head of Glen-Lyon, to the farm of Harehope, in Tweeddale, and accomplished the journey in nine days. She was soon missed by her owner, and a shepherd was despatched in pursuit of her, who followed her all the way to Crieff, where he turned, and gave her up. He got intelligence of her all the way, and every one told him that she absolutely persisted in travelling on,—she would not be turned, regarding neither sheep nor shepherd by the way. Her lamb was often far behind, and she had constantly to urge it on by impatient bleating. She unluckily came to Stirling on the morning of a great annual fair, about the end of May, and judging it imprudent to venture through the crowd with her lamb, she halted on the north side of the town the whole day, where she was seen by hundreds, lying close by the road-side. But next morning, when all became quiet, a little after the break of day, she was observed stealing quietly through the town, in apparent terror of the dogs that were prowling about the street. The last time she was seen on the road, was at a toll-bar near St Ninian's ; the man stopped her, thinking she was a strayed animal, and that some one would claim her. She tried several times to break through by force when he opened the gate, but he always prevented her,

and at length she turned patiently back. She had found some means of eluding him, however, for home she came on a Sabbath morning, the 4th of June; and she left the farm of Lochs, in Glen-Lyon, either on the Thursday afternoon, or Friday morning, a week and two days before. The farmer of Harehope paid the Highland farmer the price of her, and she remained on her native farm till she died of old age, in her seventeenth year.

“ There is another peculiarity in the nature of sheep, of which I have witnessed innumerable examples. But as they are all alike, and show how much the sheep is a creature of habit, I shall only relate one: A shepherd in Blackhouse bought a few sheep from another in Crawmel, about ten miles distant. In the spring following, one of the ewes went back to her native place, and yeaned on a wild hill, called Crawmel Craig. One day, about the beginning of July following, the shepherd went and brought home his ewe and lamb—took the fleece from the ewe, and kept the lamb for one of his stock. The lamb lived and thrived, became a hog and a gimmer, and never offered to leave home; but when three years of age, and about to have her first lamb, she vanished; and the morning after, the Crawmel shepherd, in going his rounds, found her with a new-yeaned lamb on the very gair of the Crawmel Craig, where she was lambed herself. She remained there till the first week of July, the time when she was brought a lamb herself, and then she came home with hers of her own accord; and this custom she continued annually with the greatest punctuality as long as she lived. At length her lambs, when they came of age, began the same practice, and the shepherd was obliged to dispose of the whole breed.

“ With regard to the natural affection of this animal, stupid and actionless as it is, the instances that might be mentioned are without number. When one loses its sight in a flock of short sheep, it is rarely abandoned to itself in that hapless and helpless state. Some one always attaches itself to it, and by bleating calls it back from the precipice, the lake, the pool, and all dangers whatever. There is a disease among sheep, called by shepherds the Breakshugh, a deadly sort of dysentery, which is as infectious as fire, in a flock. Whenever a sheep feels itself seized by this, it instantly withdraws from all the rest, shunning their society with the greatest care; it even hides itself, and is often very hard to be found. Though this propensity can hardly

be attributed to natural instinct, it is, at all events, a provision of nature of the greatest kindness and beneficence.

“ Another manifest provision of nature with regard to these animals, is, that the more inhospitable the land is on which they feed, the greater their kindness and attention to their young. I once herded two years on a wild and bare farm called Willenslee, on the border of Mid-Lothian, and of all the sheep I ever saw, these were the kindest and most affectionate to their young. I was often deeply affected at scenes which I witnessed. We had one very hard winter, so that our sheep grew lean in the spring, and the thwarter-ill (a sort of paralytic affection) came among them, and carried off a number. Often have I seen these poor victims, when fallen down to rise no more, even when unable to lift their heads from the ground, holding up the leg, to invite the starving lamb to the miserable pittance that the udder still could supply. I had never seen aught more painfully affecting.

“ It is well known that it is a custom with shepherds, when a lamb dies, if the mother have a sufficiency of milk, to bring her from the hill, and put another lamb to her. This is done by putting the skin of the dead lamb upon the living one; the ewe immediately acknowledges the relationship, and after the skin has warmed on it, so as to give it something of the smell of her own progeny, and it has sucked her two or three times, she accepts and nourishes it as her own ever after. Whether it is from joy at this apparent reanimation of her young one, or because a little doubt remains on her mind which she would fain dispel, I cannot decide; but, for a number of days, she shows far more fondness, by bleating and caressing over this one, than she did formerly over the one that was really her own. But this is not what I wanted to explain; it was, that such sheep as thus lose their lambs, must be driven to a house with dogs, so that the lamb may be put to them; for they will only take it in a dark confined place. But at Willenslee, I never needed to drive home a sheep by force, with dogs, or in any other way than the following: I found every ewe, of course, standing hanging her head over her dead lamb, and having a piece of twine with me for the purpose, I tied that to the lamb's neck or foot, and trailing it along, the ewe followed me into any house or fold that I chose to lead her. Any of them would have

followed me in that way for miles, with her nose close on the lamb, which she never quitted for a moment, except to chase my dog, which she would not suffer to walk near me. I often, out of curiosity, led them in to the side of the kitchen fire by this means, into the midst of servants and dogs; but the more that dangers multiplied around the ewe, she clung the closer to her dead offspring, and thought of nothing whatever but protecting it. One of the two years while I remained on this farm, a severe blast of snow came on by night, about the latter end of April, which destroyed several scores of our lambs; and as we had not enow of twins and odd lambs for the mothers that had lost theirs, of course we selected the best ewes, and put lambs to them. As we were making the distribution, I requested of my master to spare me a lamb for a hawked ewe which he knew, and which was standing over a dead lamb in the head of the Hope, about four miles from the house. He would not do it, but bid me let her stand over her lamb for a day or two, and perhaps a twin would be forthcoming. I did so, and faithfully she did stand to her charge; so faithfully, that I think the like never was equalled by any of the woolly race. I visited her every morning and evening, and for the first eight days never found her above two or three yards from the lamb; and always, as I went my rounds, she eyed me long ere I came near her, and kept tramping with her foot, and whistling through her nose, to frighten away the dog; he got a regular chase twice a-day as I passed by: but, however excited and fierce a ewe may be, she never offers any resistance to mankind, being perfectly and meekly passive to them. The weather grew fine and warm, and the dead lamb soon decayed, which the body of a dead lamb does particularly soon: but still this affectionate and desolate creature kept hanging over the poor remains with an attachment that seemed to be nourished by hopelessness. It often drew the tears from my eyes to see her hanging with such fondness over a few bones, mixed with a small portion of wool. For the first fortnight she never quitted the spot, and for another week she visited it every morning and evening, uttering a few kindly and heart-piercing bleats each time; till at length every remnant of her offspring vanished, mixing with the soil, or wafted away by the winds." *

* Shepherd's Calendar, vol. ii. p. 185—192.

We shall give but another instance of this affectionate character of the sheep, and one in which the animal discovered something more than its usual sagacity. A gentleman, while passing through a lonely district of the Highlands, observed a sheep hurrying towards the road before him, and bleating most piteously. On approaching nearer, it redoubled its cries, looked in his face, and seemed to implore his assistance. He alighted, left his gig, and followed the sheep to a field in the direction whence it came. There, in a solitary cairn, at a considerable distance from the road, the sheep halted, and the traveller found a lamb completely wedged in betwixt two large stones of the cairn, and struggling feebly with its legs upmost. He instantly extricated the sufferer, and placed it on the green sward, while the mother poured forth her thanks and joy in a long-continued and significant strain.

It may be here mentioned that monstrous productions of the sheep kind are not uncommon. Of one of these a minute and anatomical description has been given by Dr Chichester of Cheltenham.* It presented, in appearance, one head and two bodies. The head was of the natural size, complete in all its parts; common to both, without the least rudimentary trace of a second. The ribs of the one animal were connected with those of the left side of the other, by a regularly formed sternum. There was only one œsophagus, and one stomach, which appeared quite natural. There was a liver under the right ribs of each body; that belonging to the right animal about half the size of that found in the left. There was only one heart, one trachea, and one set of lungs. From each ventricle of the heart sprung an aorta; of these two vessels one turned to the right and another to the left. The philosophical history of these strange productions philosophers themselves confess to be in its infancy. It seems ridiculous to seek a law for those cases in which nature has, confessedly, singularly surmounted law. At least, as yet, no satisfactory method of accounting for such productions has been attained.

* Loudon's Magazine of Nat. Hist., vol. i. p. 325.

THE ARGALI.

THE sheep in some regions is found wild, about the size of a small deer, with large arched horns, and a fleece in summer of an ash-colour, which in winter darkens in hue. The animal in this condition is called the Argali. They abound chiefly in Kamtschatka, where they furnish the rude natives with food and clothing, of the superiority of which they express themselves in the highest terms. Instead of herding, however, they hunt these animals, and in the spring, whole families abandon their winter habitations, and devote the entire summer to the chase, of which the scene is commonly the steepest and most rocky mountains. The Argali is killed with guns or arrows, or by means of cross-bows placed in their paths, and discharged by their treading on a spring. When chased by dogs, their fleetness is exerted to gain the heights, and if successful, they look down on their pursuers with contempt. But the hunter gains his purpose,—for stealing cautiously upon them, he brings them down with his gun or arrow. The wool becomes loose at the end of May, and falls off in an entire fleece—so that the Kamtschadales are saved even the trouble of shearing. The flesh is excellent, and Mr Pennant observes, that when dried, it constitutes there an article of commerce.

THE GOAT.

This animal, though evidently belonging to the sheep kind, combines in its form, particularly in the position of its legs, a certain resemblance to some of the deer kind, while in its disposition it is distinguished from both. Its character hovers between that of a wild and a domestic animal, and in either condition it proceeds to extremes. When tamed it is petulantly familiar, when wild it seeks the most savage scenes of nature, the acclivities of the steepest mountains, the recesses or the eminences of rocks. It is in all cases courageous and sportive, indeed of so frolicksome a disposition, that the ancient mythology gave to Pan, the personification and presiding deity of rustic festivity, the limbs and shaggy covering of the goat.

In the picturesque scenery of Switzerland, among the mountains of the Tyrol, this class of animals is to be found in their natural regions, and the extraordinary energy, agility, and wildness of disposition which they discover in their flights along the precipitous tracts of the Alps, have excited a corresponding passion and enterprise in their hunters. "The Tyrolese," says Kotzebue, in his recent tour, "are all hunters, though every person unlicensed is deemed a poacher, and if caught, obliged to serve as a soldier. Yet the pursuit is grown into such a passion with them, that neither threats nor punishments can deter them from the practice. One who had been many times caught in the fact, declared aloud, 'And if I knew that the next tree must be my gallows, I must hunt.' Gain cannot be the principal inducement for this risk of their liberty, for a goat when shot weighs only fifty or sixty pounds, and sells, skin and all, for only ten or twelve florins. For this the hunter exposes himself to a thousand dangers, to ignominy, and a severe punishment. For this he spends the coldest winter nights on the cliffs, buries himself in the snow, and sacrifices his hours of sleep. Provided with a scanty store of victuals, he ranges the desert mountains, and in spite of hunger and thirst, pursues this way of life as the highest enjoyment. But when he has gained his poor plunder he is still exposed to great danger and trouble in disposing of it, unless he happens to be near the monastery at Wiltan, where he may find friends in the monks, who love to be provided with game at a cheap rate. The inns at Inspruck are also good customers to such hunters as will carry their prey thither in the night. One of these sportsmen seldom or never shoots a goat alone; they are obliged to go in company and surround the animals. A herd of goats has always a sentinel placed at a distance. On the point of a rock presenting little more space than the hand could cover, the goat stands, and when he perceives the human form, he makes a loud whistling sound, and in an instant the whole herd vanish. The poachers wear masks, or by some other means disguise their faces. If they see a gamekeeper at a distance, they beckon to him with their hands to depart in haste, saying to him, 'Go, or we will make you;' if he does not go they level their pieces at him, not however, till they have seen no other method of escape possible. If a gamekeeper recognises one of them, and informs against him, he must afterward guard

against their revenge. Of this there have been some melancholy instances. A poacher who in consequence of these practices had been for many years obliged to serve in a distant regiment, was at length discharged, and returned to his country. He immediately began climbing the mountains again in search of game, met the informer, and shot him dead. I am not prepared to decide whether the government would do better in yielding to this unconquerable propensity, and whether a people who in case of urgency must defend their frontiers, should not be allowed to train themselves for war with men by a constant pursuit of wild beasts. It is certain that these hardy Tyrolese defended themselves with great bravery against the French."

Nor does the goat lose its activity in a life of domestication, or even of servitude. It has been trained to perform, as a public show, the same arts of the nice position and balancing of its body which, in a state of nature, it practises among the wild crags and mountains of the Alps. "We met," says Dr Clarke, "an Arab with a goat which he led about the country to exhibit, in order to gain a livelihood for itself and its owner. He had taught this animal, while he accompanied its movements with a song, to mount upon little cylindrical blocks of wood, placed successively one above another, and in shape resembling the dice-box belonging to a backgammon table. In this manner the goat stood, first on the top of one cylinder, then on the top of two; afterwards, of three, four, five and six, until it remained balanced upon the summit of them all, elevated several feet above the ground, and, with its four feet collected upon a single point, without throwing down the disjointed fabric where it stood. The diameter of the upper cylinder, on which its four feet alternately remained until the Arab had ended his ditty, was only two inches, and the length of each six inches. The most curious part of the performance occurred afterwards; for the Arab, to convince us of the animal's attention to the turn of the air, interrupted the *Da Capo*; and, as often as he did this, the goat tottered, appeared uneasy, and, upon his becoming suddenly silent, in the middle of his song, it fell to the ground."

The goat possesses great natural affection for its young, and uses both courage and artifice in their defence. The fox, which is the particular enemy of the whole of the sheep kind, does

not fail to attempt to seize the young of the goat. When the mother discovers the fox approaching while the insidious foe is yet at a distance, she conceals her offspring in some thicket, and interposes herself between it and the wily marauder. The kid, when conveyed to this retreat, invariably lies close and still, as if, according to the fable, she had received the verbal instructions of the dam. But the fox generally discovers the retreat of the kid,—and a contest ensues between the rapacious and the affectionate animal. The manner of these contests is illustrated by the following anecdote, which furnishes an affecting instance at once of the courage and of the love of its offspring possessed by the goat:—A person having missed one of his goats when his flock was taken home at night, being afraid the wanderer would get among the young trees in his nursery, two boys, wrapped in their plaids, were ordered to watch all night. The morning had but faintly dawned, when they sprung up the brow of a hill in search of her. They could but just discern her on a pointed rock far off, and hastening to the spot, perceived her standing with a newly dropped kid, which she was defending from a fox. The enemy turned round and round to lay hold of his prey, but the goat presented her horns in every direction. The youngest boy was despatched to get assistance to attack the fox, and the eldest, hallooing and throwing up stones, sought to intimidate him as he climbed to rescue his charge. The fox seemed well aware that the child could not execute his threats; he looked at him one instant, and then renewed the assault, till, quite impatient, he made a sudden effort to seize the kid. The whole three disappeared, and were found at the bottom of the precipice. The goat's horns were darted into the back of the fox; the kid lay stretched beside her. It is supposed the fox had fixed his teeth in the kid, for its neck was lacerated; but when the faithful mother inflicted a death-wound upon her mortal enemy he probably staggered, and brought his victims with him over the rock.

There is nothing more pleasing than a distinct instance of gratitude in one of the inferior animals. The obedience wrung from them by force or constraint can never be either so flattering or so agreeable as the services which flow from an apparent recollection of kindness. We have observed the horse remembering the places where he had been cured of disease; the pro-

tection which the dog is always ready to yield at the expense of its life to the person and property of its master, we are willing to ascribe to the same feeling; and it is this also which gives the charm to the story of Androcles and the lion, and to others of the same class. In the following anecdote we are presented with an instance of an apparent wish to secure from injury, the person who had done the animal a benefit:—A gentleman who had taken an active share in the rebellion of 1715, after the battle of Preston, escaped to the West Highlands to the residence of a female relative who afforded him an asylum. As it was soon judged unsafe for him to remain in the house of his friend, he was conducted to a cavern in a sequestered situation, and furnished with a supply of food. The approach to this lonely abode consisted of a small aperture, through which he crept and dragged his provisions along with him. A little way from the mouth the roof became elevated, but on advancing an obstacle obstructed his progress; unwilling to strike at a venture with his dirk, he stooped down, and discovered a goat and her kid lying on the ground. He soon perceived that the animal was in great pain, and feeling her body and limbs, ascertained that one of her legs had been fractured. He bound it up with his garter, and offered her some of his bread; but she refused to eat, and stretched out her tongue, as if intimating that her mouth was parched with thirst. He gave her water, which she drank greedily, and then she eat the bread. At midnight he ventured from the cave, pulled a quantity of grass and the tender branches of trees, and carried them to the poor sufferer, which received them with demonstrations of gratitude. The only thing which this fugitive had to arrest his attention in his drear abode, was administering comfort to the goat; and he was indeed thankful to have any living creature beside him. The goat quickly recovered, and became tenderly attached to him. It happened that the servant who was intrusted with the secret of his retreat fell sick, when it became necessary to send another with provisions. The goat, on this occasion, happening to be lying near the mouth of the cavern, opposed his entrance with all her might, butting him furiously; the fugitive hearing a disturbance, went forward, and receiving the watchword from his new attendant, interposed, and the faithful goat permitted him

to pass. So resolute was the animal on this occasion, that the gentleman was convinced she would have died in his defence.

Though the favourite abode of the goat be the mountains, and its agility well fitted for that residence, yet it is found in other situations, and variously affected by habit and climate. The wood-goat is about thirty inches high, and has legs and feet remarkably slender. The colour of the body is a dark brown, varied by a long stripe of white along the ridge of the back, by two large white spots on each cheek-bone, and by others sprinkled on the haunches. This kind is sometimes hunted with dogs, and during the chase they are observed to lay their horns, which are long and wreathed, upon their necks, to prevent their becoming entangled among the bushes. When overtaken, they place themselves in an attitude of defence, and frequently kill or gore some of the hounds before they are overcome.

Of Asiatic goats, judging by their fleece, there are two sorts; that of Angora, distinguished by the length and pendent nature of the hair; and that of Thibet, by its shortness and stiffness. The former has no down, the latter on the contrary is covered during winter, with a down, which is finer and more abundant in those kept on the mountains. These two races, originally from Asia, have produced by their mixture, aided by the influence of climate, many varieties. On examining with attention the European goat, it will be found also, that the long-haired ones have no down; or if they have any, it is in very small quantities along the vertebral column; while of those which have short hair, there are to be found some which have a down spread over the entire carcass. This down grows almost to the length of hair in the spring; then comes off and appears on the surface, to which it gives a grey tint. By the mixture of these breeds, a bastard race is formed, which have more or less down; but it is observed, that the offspring partake more of the dam than of the sire. The two principal importations of the goats of Asia into Germany, are those of M. Wallner of Geneva, who procured them directly from Thibet; and of M. Lowenherz, who received them from M. Terneaux; so that the former are goats of Thibet, the latter Kirguises. The emperor of Austria, the kings of Bavaria and Wurtemberg, all the archdukes, and some private individuals, have procured goats of the former importation. They have been introduced into Saxony

by M. de Buest, on his domain of Tossfell. The project of introducing the breed of goats of Cashmere into Germany has not been very favourably entertained. One writer has pretended to show, that the European goat, by a single cross, might be brought to yield the precious article for which so much money is sent into Asia. Another argues against the Asiatic animal, on the ground that a single sheep of a good breed will bring four times the profits of a goat of Thibet; and a third, M. Schmidt, rejects their introduction into Germany, because France has anticipated that country in the manufacture of the merchandise in which their down is used.*

THE IBEX AND CHAMOIS.

THE Ibex has a near resemblance to the goat, but exceeds it in size. The beard is long; the body short, thick, and strong; the hair long, of a brownish or ash colour, with a streak of black running along the back, and the belly and thighs of a delicate fawn colour. It is found on the highest points of the Rhaetian Alps, on the Pyrenean and Carpathian mountains, and on the hills of Crete. There ibexes assemble in flocks, not generally exceeding ten or fifteen in number. They feed during the night in the highest woods, but at sunrise begin to ascend the mountains, feeding in their progress till they have gained the most considerable heights. They prefer the east or south side of a hill, and repose in the hottest exposures. As the sun declines they descend toward the woods. In them too they spend the winter. As the individuals of this class advance in years they become inclined to solitude, and frequent more elevated places at the same time that they become hardened against the effects of cold.

This class of animals is hunted by mountaineers only, or by those who are capable of looking down from the most tremendous acclivities without fear, of enduring much fatigue, and of leaping with great agility. The hunters associate in numbers of two or three, furnish themselves with small bags of provisions,

and are armed with rifle-guns. They pass the night on the mountains in miserable huts, of which they find the entrance often blocked up in the morning with snow of several feet deep. As the animals ascend into the higher regions very early in the morning, it is necessary to gain the heights before them; otherwise they scent the hunters, and fly off to a distance of several leagues. Their strength is also so prodigious, that when close pressed they sometimes turn upon the incautious huntsman, and tumble him down the precipices, unless he has time to lie down, and let the animal bound over him. Some authors have likewise asserted, that when they cannot otherwise avoid the hunter, they will even precipitate themselves from the summits of the rocks, and fall on their horns in such a manner as to escape unhurt; or that they will suspend themselves by their horns over the precipices, by a projecting tree, and remain in that situation till the pursuer abandon his fruitless efforts.

The ibex, it is said, will mount a perpendicular rock of fifteen feet, at three successive bounds, of five feet each. If he happen to be between two rocks which are near each other, and he want to reach the top, he leaps from the side of one rock to that of the other alternately, till he has attained the summit. The fore-legs of these animals being considerably shorter than the hinder ones, enables them to ascend with much more ease than to descend; hence nothing but the severest weather can induce them to go down into the valleys.

The voice of the ibex is a short acute whistle, somewhat like that of the chamois, but of less continuance. The female seldom produces more than one kid at a time; but towards this she exhibits the utmost maternal tenderness.

THE CHAMOIS is the name given to a species of goat that is found dispersed among the picturesque mountains of Switzerland, Italy, and Greece. It nearly resembles the common goat in form and appearance, but is remarkable for its extraordinary agility, and the wonderful extent and precision of its leaps. It springs from one projection to another with unerring certainty bounding over the chasms of rocks, or throwing itself from a height of twenty or even thirty yards upon the smallest ledge, where there is scarcely room for its feet to plant themselves. This extraordinary power of balancing the body is the peculiarity of the goat tribe—and is possessed, as we have shown in the

anecdote related by Clarke, in great perfection by the goat itself. With this power is associated an ability to measure distances by the eye with unerring certainty. These are natural faculties possessed by the animal, and not the result of training; for no sooner does the young chamois possess the necessary strength, than it imitates the feats of its more practised companions. The hunting of an animal so peculiarly active, and which inhabits the most inaccessible parts of the woody regions of the greatest mountains in Europe, must be a work of no common enterprise and difficulty. Its success depends on the precision with which the hunter aims at it from a very great distance, or on the perseverance with which he follows it, perhaps for days, from rock to rock. Of the passion which the hunters of the Alps have for this kind of enterprise we have already, when treating of the goat, given an account. For a minute description of the manner of the pursuit we refer the reader to Goldsmith's account of this animal, and to the copious notes appended to it.*

THE GAZELLE.

UNDER this name Goldsmith has included a class of animals which, though admitting several sub-divisions, and distinguished from one another by particular characteristics,† are all remarkable for a disposition gentle and social, and for the extreme delicacy of their sight, their hearing, and their smell.

The most elegant of the class is that to which the name of Gazelle properly belongs. Its skin is beautifully sleek, its legs slender as a reed, its ears highly flexible, and its eyes brilliant and glancing. To it the Arabian poets have applied their choicest epithets; and Byron, to give an idea of the dark eyes of an eastern beauty, says, "Go look on those of the Gazelle!" The Arabian boasts of this animal as his pride and his delight; as one of the few gifts of nature which his country possesses in great perfection:—

* Vol. ii. p. 33, and p. 37—39, notes.

† For these, see Goldsmith, vol. ii. p. 42, and the note to p. 33.

Our hills are bare, but down their slope
The silvery-footed Antelope,
As lightly and as gaily springs,
As o'er the marble courts of kings.

The tribe is spread in innumerable herds from Arabia to the river Senegal in Africa. Lions and panthers feed upon them; and man chases them with the dog, the ounce, and the falcon. The incalculable numbers in which these animals are produced preserve the breed notwithstanding all the ravages to which they are liable.

So numerous are the herds of the SPRINGBOK, an animal of this class, that, in Southern Africa, where they migrate from the more wild to the more cultivated districts; when the dry season sets in, the grazier makes up his mind to look for pasture for his flocks elsewhere, and considers himself entirely dispossessed of his lands until heavy rains fall. Mr Pringle, speaking of them, says,—“ Some passed through a most astonishing multitude scattered over the grassy plains near the Little Fish River. I could not, for my own part, profess to estimate their numbers with any degree of accuracy, but they literally *whitened*, or rather speckled the face of the country, as far as the eye could reach over those far-stretching plains; and a gentleman, better acquainted than myself with such scenes, who was riding with me, affirmed that we could not have fewer of these animals, at one time, under our eye, than twenty-five or thirty thousand.”

THE ANTELOPE.

THIS is likewise a very beautiful animal. In the elegant symmetry of their form, and the light and graceful agility of their motions, the Antelopes are superior even to the Deer, whom, however, they closely resemble, not merely in outward shape, but also in internal structure. Like them, in addition to the coincidence of a slightly made and beautifully proportioned figure, they are frequently furnished with a naked muzzle, and with the same remarkable sinus beneath the inner angle of the eye; and their ears are generally of considerable size, erect, and pointed. But they are strikingly

distinguished from them and from all the other animals of the order by the peculiar character of their horns, which are formed of an elastic sheath enclosing a solid nucleus, and are for the most part common to the females as well as to the males. They have no canine teeth, and exhibit no appearance of a beard such as is seen in the goats. The horns vary greatly in the different races; they are sometimes straight and upright, at other times slightly curved, and frequently spirally twisted with the most beautiful regularity: they are usually surrounded by elevated rings or by a spiral ridge, are constantly of the same form in the same species, and are not subject to an annual falling off and renewal, as in the deer, from which they differ also in their mode of growth, the horns of the latter group lengthening at their apices, while those of the former receive their increase at the base.

In their natural habits the numerous species of which this group is composed approach very closely to the deer; there is, however, considerable variety in their mode of life. They inhabit almost every description of country; the sandy desert, the open plain, the thicket, the forest, the mountain, and the precipice, being, each in its turn, the favourite haunt of the different races; but, with the exception of a few species, they do not advance much beyond the limits of the tropics. The smaller ones usually prefer a solitary life, but the larger, for the most part, congregate together in herds, which are generally few in number. In their manners they exhibit much of that cautious vigilance and easily startled timidity, combined with a certain degree of occasional boldness and not a little curiosity, which are the natural consequences of their wild and unrestricted habits, of their trivial means of defence against the numerous enemies to whose attacks they are exposed, and of the unequalled fleetness of their speed. In some this latter quality consists of a continued and uniform gallop, which in others is interrupted at every third or fourth stroke by a long and generally a lofty bound, producing a beautiful effect by its constant and rapid recurrence.

The Indian antelope, of which a specimen in the Tower constitutes a remarkable and highly interesting variety, is not only one of the most beautiful, but also the most celebrated species of the group. In size and form it closely resembles the Gazelle of the Arabs, the well known emblem of maiden beauty, typified,

according to the poets, in the elastic lightness of its bound, the graceful symmetry of its figure, and the soft lustre of its full and hazel eye. From this truly elegant creature that in the Tower is, however, essentially distinguished by several striking characters. Its horns, which are peculiar to the male, are spirally twisted, and form, when fully grown, three complete turns ; they are closely approximated to each other at the base, but diverge considerably as they proceed upwards. They occasionally attain a length of nearly two feet, and are surrounded throughout by elevated and close-set rings. The two horns taken together have frequently been compared to the branches of a double lyre. The extremity of the nose is bare, forming a small and moist muzzle ; the sub-orbital openings are larger and more distinct than in almost any other species ; and the ears are pointed and of moderate size. The natural colours vary with the age of the animal, but correspond in general pretty closely with those of the common deer. They may be shortly described as fawn above and whitish beneath, becoming deeper with age, and lighter in the females than in the males. The occasional stripes of a lighter or darker colour, which are generally visible on various parts of the body, can scarcely be considered as occurring with sufficient regularity to allow of their being described as characteristic of the species.

But for these shades of colour, or for any other, we should look in vain in the animal of the Tower Menagerie, which, in consequence of a particular confirmation, not unfrequent in some species of animals, and occasionally met with even in the human race, is perfectly and purely white. In order to explain this phenomenon, which is one of the most curious, but at the same time one of the most simple in physiology, it is necessary to observe that there exists beneath the epidermis, or outer covering of the skin, both in man and animals, a peculiar membrane of very fine and delicate texture, which is scarcely visible in the European but sufficiently obvious in the Negro, termed by anatomists the rete mucosum. In this net-work is secreted, from the extremities of the minute vessels which terminate upon its surface, a mucous substance which varies in colour according to the complexion of the individual, of the varieties in which it is the immediate cause ; and from the substance thus secreted, the colouring matter of the hairs and of the iris is derived. The pure whiteness then

of the covering of the animal in question, and of all those which exhibit a similar variation from their natural tinge, is attributable solely to the absence of this secretion from whatever cause. It is always accompanied, as in the present instance, by a redness of the eyes, arising from the blood vessels of the iris being exposed to view in consequence of the want of the usual coating formed by this secretion, by which they are naturally protected from the too great influence of the light. In the human race, the individuals who are thus afflicted, characterized by the dull whiteness of their skins, the deep redness of their eyes, and their colourless, or, as it is generally termed, flaxen hair, are called Albinos. They are generally timid in disposition, languid in character, and weak both in mind and body. The same original conformation, for it is always born with the individual and never acquired in after life, although sometimes prolonged beyond its limits in the shape of a hereditary legacy, is common to many animals. Perhaps the most familiar instances among these are the white mice, the white rabbits, and the white pigeons, which are known to every one. But it has also been occasionally seen in many other species, as monkeys, squirrels, moles, pigs, and even cows and horses, and, to come a little closer to our present subject, in goats and deer. Not even that massive and stupendous beast the elephant is exempted from its influence. It can hardly be necessary to recall to the reader the title on which the ruler of millions of not uncivilized Asiatics, the Burmese monarch, prides himself more than on any other, inasmuch as it is the emblem of power and prosperity, that of Lord of the White Elephant; a title, which, while it demonstrates the fact of the existence of this deviation in the elephant as well as in other animals, proves also the extreme rarity of its occurrence. It has moreover been noticed in many species of birds.

The present species of antelope is spread over the whole of the peninsula of Hindoostan and a part of Persia; but it is questionable whether it has been found in Africa, as is commonly asserted. They are said to bound with apparent ease over a distance of from twenty-five to thirty feet, and mounting to the height of ten or twelve. It is consequently useless to attempt to chase them in the common mode with hounds; and their pursuit is restricted to the higher nobility, who employ for the purpose either hawks, who pounce upon their quarry, and detain

it until the dogs can come up ; or chetahs, who attack them by surprise in the manner before described.

The elegant Albino now in the tower was brought from Bombay by Captain Dalrymple of the Vansittart, and remained for a considerable time at Sand Pit Gate, where it was an especial favourite with his majesty—as well on account of the gentleness of its disposition, as for its rarity and beauty. It bears its confinement in the menagerie with perfect resignation, and it is remarkable for the mildness and tranquillity of its deportment.

The antelopes of America are lean. Being fleet and quick-sighted, they are generally the victims of their curiosity ; for when they first see the hunters, they run with great velocity ; if he lies down on the ground, and lifts up his arm, his hat, or his foot, the antelope returns on a light trot to look at the object, and sometimes comes and goes two or three times, till it gets within reach of the rifle. Sometimes too they leave their own herd to go and look at the wolves, who crouch down, and if the antelope be frightened at first, they repeat the same manœuvre, and sometimes relieve each other, till they get it completely from the rest, when they seize it. But generally the wolves seize the antelopes while they are crossing the rivers ; for though swift of foot, they are bad swimmers.*

* Capts. Lewis and Clarke's Travels.

THE DEER KIND.

THE STAG.

THE stag is the most beautiful and elegant of all the deer kind, and furnishes a similar ornament to the plains, the mountains, and woods of the North which the Antelope does to the sandy hills of Arabia, or the wide extended plains of India and Southern Africa. The eyes of this animal are bold and expressive, furnished with lachrymal sinuses which also relieve it in hurried breathing. Its height is from three feet six inches to four feet high at the shoulders; and it is of that colour which has given to it the denomination of red deer. It possesses great lightness of motion and flexibility of limbs. The bone of its foot is peculiarly small and hard, properties which contribute to the fleetness and strength of the animal. The strength of the joints of an animal's foot depends less upon their own ligaments than on the action of the muscles where tendons pass over them,—“a fact which,” says Sir Everard Home,* “was strongly impressed on my mind by seeing a deer which leaped over the highest fences, and the joints of whose feet, when examined, were as rigid in every other direction but that of the motion as the bone itself; but when, with a view to keep the animal from running away, the tendo Achillis which passed over the joint was divided, the foot would readily be moved in any direction, the joint no longer having the smallest firmness.”

The horns of the stag grow into a great many ramifications, which, while the animal was less under the influence

* Comparative Anatomy, vol. I. p. 96.

of man, were more numerous than at the present day. In some individuals these multiplied to an extraordinary extent. There is one in the museum of Hesse Cassel, with twenty-eight antlers. Baron Cuvier mentions one of sixty six, or thirty-three on each horn. This stag was killed by the first king of Prussia. The stag begins to shed his horns in the latter end of February, or beginning of March, when he retires to thickets, and remains till the horns are completely restored. Soon after the old horns have fallen off, a soft tumour begins to appear, which is quickly covered with a velvety-like substance. From this every day little buds shoot forth, like the grafts of a tree, and, rising by degrees, spring out the antlers on each side; the skin continues to cover it for some time, and is furnished with blood-vessels, which supply the growing horn with nourishment, and occasion the furrows observable in them when the covering is stript off. When the horns are full grown, they acquire strength and solidity, and the velvet covering, or skin, with its blood-vessels, dries up, and begins to fall off; which is facilitated by the animal rubbing them against trees. At this time they again enter the open parts of the forest, to join the female. The hind is gravid eight months and some days, and produces a single fawn, in the end of May or beginning of June. The fawn continues with the dam during the summer, but in the winter all the animals of both sexes, and their young, congregate in large herds, and extend as the severity of the winter increases, remaining together till the males disperse to shed their horns. The velvet of the horns when dried, is considered by epicurean sportsmen the most delicate part of the deer. The horns, the growth of which occupies only about six weeks, have been known to weigh twenty pounds. "It is a mistaken notion, that the antlers impede the deer in cover, as they enable him, on the contrary, to dash through thickets and save his eyes, as also to aid him when reared on their hind legs, which they do to an extraordinary height to draw down the young branches for sustenance."*

It was to be expected that an animal whose flesh is so palatable as that of the stag is, and one so distinguished for elegance, fleetness, and resources when pursued, should have be-

* Colonel Thornton's Sporting Anecdotes.

come a very favourite object of chase. Yet the stag-chase does not seem to possess even the small palliations that belong to fox-hunting. The fox is an animal which, if persecuted by the art of men, itself persecutes in turn with the greatest cunning, meanness, and cruelty. The noble and generous qualities of the stag,—the innocence of its life,—its capability of being kept in parks, and almost in a state of domestication, seem all like an appeal to humanity against the cruelties of the hunt. We shall, however, quote an account of a stag-hunt, told in the usual language, and presenting somewhat more than the usual incidents that attend such a proceeding, leaving the reader to find where the charms of the pursuit may lie:—"On Monday, Nov. 20, 1820, the royal hounds met at Stoke Common, Bucks, where a remarkably fine deer was turned out. The field was extremely numerous. The deer, at starting, showed great sport, taking, at full speed, through the enclosures, making towards Slough, and afterwards for Datchet, where he crossed the Thames, and then took to the right, and again crossed the river. The deer proceeded up a lane at the back of Eton College, running with great swift-ness into the yard of Mr Castles, pork-butcher. He boldly proceeded through the house into the street, with a cur-dog at his heels; and crossing Windsor Bridge, to the bottom of Thames-street, actually run up the Hundred Steps, a steep and winding ascent to the Castle. On his reaching the top, he made a pause, and then returned into Thames-street, many of the sportsmen having rode round into the Castle, with the object of heading him as he came up the steps. The stag crossed Windsor Bridge again with great swift-ness, and passed down Eton, entered the shop of Mr Levy, an orange merchant, making his way in different parts of the house, till he got into the kitchen, where he remained some time: a great crowd was collected round the house. On his leaving the kitchen, he passed through the back way into gardens. At this time, many hundreds of persons joined in the chase. This excellent deer, after having performed these extraordinary feats, and afforded a charming day's sport, was at last taken in attempting to leap over the high wall between Eton College and the Fifteen-arch Bridge."*

* Sporting Magazine, New Series, vol. vii. p. 87.

In ancient times, the stag-hunting even of England had more real excitement about it, for it was not unattended with danger. He that was foremost in the run had duties to perform, and these duties had sometimes rather more of peril about them, than falls to the lot of the modern sportsman, who leaves all which constituted "wood-craft" to the huntsman and the whipper-in. Scott has described one of these dangers in the notes to the *Lady of the Lake* :—

"When the stag turned to the bay, the ancient hunter had the perilous task of going in upon and killing or disabling the desperate animal. At certain times of the year this was held particularly dangerous, a wound received from a stag's horn being then deemed poisonous, and more dangerous than one from the tusks of a boar, as the old rhyme testifies :—

If thou be hurt with hart it brings thee to thy bier,
But barber's hand will boar's hurt heal, thereof thou need'st not fear.

"At all times, however, the task was dangerous, and to be adventured upon wisely and warily, either by getting behind the stag while he was gazing on the hounds, or by watching an opportunity to gallop roundly in upon him, and kill him with the sword. Wilson, the historian, has recorded a providential escape which befell him in this hazardous sport, while a youth, and follower of the Earl of Essex :—

"Sir Peter Lee, of Lime, in Cheshire, invited my lord one summer to hunt the stag. And having a great stag in chase, and many gentlemen in the pursuit, the stag took soyle. And divers, whereof I was one, alighted, and stood with swords drawne, to have a cut at him, at his coming out of the water. The stag then, being wonderfully fierce and dangerous, made us youths more eager to be at him. But he escaped us all. And it was my misfortune to be hindered of my coming nere him, the way being sliperie, by a fall; which gave occasion to some, who did not know mee, to speak as if I had falne for feare. Which being told mee, I left the stag, and followed that gentleman who [first] spake it. But I found him of that cold temper, that it seems his words made an escape from him; as by his denial and repentance it appeared.

"But this made mee more violent in pursuite of the stag, to recover my reputation. And I happened to be the only horse-

man in, when the dogs sett him up at bay; and approaching nere him on horsebacke, hee broke through the dogs, and run at mee, and tore my horse's side with his hornes, close by my thigh. Then I quitted my horse, and grew more cunning (for the dogs had sette him up againe), stealing behind him with my sword, and cut his ham-strings; and then got upon his back, and cut his throate; which as I was doing, the company came in, and blamed my rashness for running such a hazard.' "

But the chase, at these early periods of our history, supplied the wants both of food and clothing, in a country imperfectly cultivated. Hunting was, originally, a serious occupation, which employed the skill of the bravest men. The first founders of empires are represented to have been hunters. Even within a few centuries, the people of these islands hunted partly for necessity and partly for amusement. When the arts of civilized life, which arise out of the division of labour, were imperfectly known and sparingly pursued, the huntsman found most of his wants supplied by the deer which he killed. A highlander thus addressed Henry VIII. :—

" We go a hunting, and after that we have slain red-deer, we flay off the skin by and by, and setting of our bare foot on the inside thereof, for want of cunning shoemakers, by your grace's pardon, we play the cobblers, compassing and measuring so much thereof, as shall reach up to our ancles, pricking the upper part thereof with holes, that the water may repass where it enters, and stretching it up with a strong thong of the same above our said ancles. So, and please your noble grace, we make our shoes. Therefore, we using such manner of shoes, the rough hairy side outwards, in your grace's dominions of England, we be called ' Rough-footed Scots.' "

The stag, though thus vigorous in eluding the pursuit and resisting the violence of the huntsman, is like some other animals, liable to a kind of fascination. A gentleman writing of Bengal, says—that in that country, three or four times, where a line of troops was marching in a long uninterrupted series, past a herd of deer, he observed that when their attention was taken off from grazing by the humming murmuring noise proceeding from the troops, they at first, and for a while, stood staring and aghast, as if attracted by the successive progression of the files, all clothed in red. At length, however, the leading

stag striking the ground, snorted, and immediately rushed forward across the ranks, followed by the whole collection, to the utter surprise and confusion of the soldiery,—thus running into the very danger one naturally supposes they must have at first been anxious to avoid. They who were apprised by the sound of their approach, stopped and made way for them. Over the heads of others, who were heedless and inattentive, they bounded with wonderful agility, and fled over the plain. A similar rush of a herd of deer through a band of hunters encircling them was not uncommon in the Highlands of Scotland.* In this latter case it may be referred to a desperate effort to escape. Our author ascribes the incident which he relates to fascination, and supposes a parallel case to that of a young heifer which pursued his carriage; fixed its eyes on the wheel; after a little, rapidly darted forward on it, and was only induced to withdraw by the injury which she received from the violence of the friction.

The stag is only driven to attempt to inflict injury on any other animal by a last effort to escape destruction itself. In these circumstances it discovers great vigour and boldness. The following experiment was made more than eighty years ago by the late Duke of Cumberland, to ascertain the true and natural instinctive courage of the stag, when opposed to an enemy of the most formidable and terrific description:—To effect this, one of the ablest stags in Windsor Forest was enclosed in an area formed upon a selected spot near the lodge, and surrounded with a remarkably strong net toiling, full fifteen feet high. This operation took place in sight of Ascot Heath races, so that thousands were present upon the occasion. When every thing was prepared, and the stag parading in majestic consternation at the assemblage of people around the net-work, a trained ounce, or hunting tiger, was led in, hoodwinked, by the two blacks that had the care of him, and who, upon a signal, set him and his eyes at liberty. Perhaps so general a silence never prevailed among so many thousands of spectators as at that moment, when the slightest aspirations of a breeze might have been distinctly heard. The ounce, taking one general survey, instantly caught sight of the deer, and, crouching down on his

* See Waverley.

belly, continued to creep exactly in the manner of a cat drawing up to a mouse, watching to dart upon it with safety. The stag, however, most warily, steadily, and sagaciously, turned as he turned; and this strange and desperate antagonist found himself dangerously opposed by the threatenings of his formidable brow antlers. In vain did the ounce attempt every manœuvre to turn his flanks; the stag possessed too much generalship to be foiled upon the *terra firma* of his native country, by a foreign invader. This cautious warfare continuing so long as to render it tedious, and, probably, to protract the time of starting the horses upon the race ground, his Royal Highness inquired, if, by irritating the ounce, the catastrophe might not be hastened. He was answered, it probably might prove dangerous, or be attended with disagreeable consequences; but it was ordered to be done; upon which the keepers proceeded very near the ounce, and did as they were directed; when immediately, without attacking the deer, with a most furious and elastic bound, he sprang at and cleared the toiling that enclosed them; landing amidst the clamours, shouts, and affrighted screams of the multitude, who fled in every direction, each male and female thinking themselves the destined victim of the ounce's rage, who, nevertheless, regardless of their fears or their persons, crossed the road, and rushed into the opposite wood, where he fastened upon the haunch of one of the fallow deer, and brought him to the ground. His keepers, to whom he was perfectly familiarized, hesitated for some time to go near him; at length, however, they mustered resolution to approach, and, cutting the deer's throat, separated the haunch which he had seized, and led him away with it in his mouth.

At Veuve, a village situated on the river Ouche, which falls into the Paone, about twelve miles below Dijon, in the province of Cote d'Or, France, it was customary, from the beginning of April till the end of June, to drive the cows to graze upon the neighbouring hills, situated on the opposite side of the river, through which they waded without difficulty. In the year 1757, at the hour when the herds were driven to pasture, a stag used daily to come down from the hills to the banks of the river and meet them. The bull which accompanied these cattle, proud of his imagined superiority and strength, and jealous of his rights, attempted to drive away this intruder, by butting him with his

horns. The stag willingly accepted the challenge, and attacked the bull with such impetuosity, that he was obliged to yield to him the command of the herd. This combat was daily renewed, and the two rivals challenged each other to the onset, while still at a great distance from each other, and the hills actually resounded with their bellowing. But such was the vigour of the stag's attacks, and the rapidity of his movements, that he always came off victorious, and led the cows every day triumphantly to the hills, availing himself of all the rights of a conqueror.

We add another notice of the courage of the stag :—As Captain Smith, of the Bengal Native Infantry, was out in the country with a shooting party, very early in the morning, they observed a tiger steal out of a jungle, in pursuit of a herd of deer ; having selected his object, the poor animal was quickly deserted by the herd ; the tiger advanced with such amazing swiftness, that the stag in vain attempted to escape, and at the moment the gentleman expected to see the fatal spring, the stag gallantly faced his enemy, and for some minutes kept him at bay ; and it was not till after three attacks that the tiger succeeded in securing his prey. He was supposed to have been considerably injured by the horns of the stag, as, on the advance of Captain Smith, he abandoned the carcass, having only sucked the blood from the throat.

The stag is capable of being tamed, when it becomes rather petulant and dangerous, and also of being trained to various uses, even to drag a phaeton :—Among the various experiments of a sporting nature, performed by the late Lord Oxford, perhaps none was more eccentric than his determination to drive four red deer stags in a phaeton, instead of horses, and these he had reduced to perfect discipline for his excursions and short journeys upon the road ; but, unfortunately, as he was one day driving to Newmarket, their ears were saluted with the cry of a pack of hounds, which, soon after crossing the road in the rear, caught scent of the “four in hand,” and commenced a new kind of chase, with “breast-high” alacrity. The novelty of this scene was rich beyond description ; in vain did his Lordship exert all his charioteering skill ; in vain did his well-trained grooms energetically endeavour to ride before them ; reins, trammels, and the weight of the carriage,

were of no effect, for they went with the celerity of a whirlwind ; and this modern Phaëton, in the midst of his electrical vibrations of fear, bid fair to experience the fate of his namesake. Luckily, however, his Lordship had been accustomed to drive this set of "fiery-eyed steeds" to the Ram Inn, at Newmarket, which was most happily at hand ; and to this his Lordship's most fervent prayers and ejaculations had been ardently directed. Into the yard they suddenly bounded, to the consternation of hostlers and stable boys, who seemed to have lost every faculty upon the occasion. Here they were luckily overpowered, and the stags, the phaeton, and his Lordship, were all instantaneously huddled together in a barn, just as the hounds appeared in full cry at the gate.

Nor are its feats confined to such exercises ; the stag has been taught tricks, almost equal to those which excite wonder when performed by the dog or horse. The following circumstances, mentioned by Delacroix, prove that the stag is susceptible of receiving instruction, and must be capable of considerable observation :—"When I was at Compeigne," says he, "my friends took me to a German, who exhibited a wonderful stag. As soon as we had taken our seats in a large room, the stag was introduced. He was of an elegant form and majestic stature, his aspect at once animated and gentle. The first trick he performed was, to make a profound obeisance to the company as he entered, by bowing his head ; after which he paid his respects to each individual of us in the same manner. He next carried about a small stick in his mouth, to each end of which a small wax taper was attached. He was then blind-folded, and, at the beat of a drum, fell upon his knees, and laid his head upon the ground. As soon as the word *pardon* was pronounced, he instantly sprang upon his feet. Dice were thrown upon the head of a drum, and he told the numbers that were cast up, by bowing his head so many times. He discharged a pistol, by drawing with his teeth a string that was tied to the trigger. He fired a small cannon, by means of a match that was fastened to his right foot, without showing any signs of fear. He leaped several times, with the greatest agility, through a hoop, which his master held at a man's height from the ground. At length the exhibition was closed, with his eating a handful of oats from the head of a drum, which a person was beating the whole time

with the utmost violence. Almost every trick was performed with as much steadiness as it could have been accomplished by the best trained dog."

No animal is more affectionate than the stag, or discovers greater sympathy towards such of its herd as may chance to be in pain or suffering :—A gamekeeper hit a stag with a ball, which did not prove fatal, and he had strength enough to fly into the heart of the forest, where the gamekeeper lost sight of him. Convinced that he had not missed his mark, and that the deer must sooner or later fall, he followed his track ; but he had to traverse the forest for a long time before he saw any thing of the stag. At length he heard the animal groaning in a thicket at some little distance. He quickened his pace, and discovered the wounded animal stretched upon the ground. He was just about to fire a second time, when he saw two other stags run up to the wounded animal. His curiosity being excited, he stopped to observe what they would do, without being himself seen by them. As soon as the wounded animal saw his friends, he altered his tones, and moaned in a louder and more impressive voice. The two others then began to lick his wounds ; and as long as they continued to lick, the wounded stag was silent, for it seemed to afford him relief. The man then shot a second time, and hit him in the heart. The two others fled into the wood.

At Wondersh, near Guildford, the seat of Lord Grantley, a fawn was drinking in the lake, when one of the swans suddenly flew upon it, and pulled the poor animal into the water, where it held it under till it was drowned. This act of atrocity was noticed by the other deer in the park, and they took care to revenge it the first opportunity. A few days after, this swan happening to be on land, was surrounded and attacked by the whole herd, and presently killed. Before this time they were never known to molest the swans.

THE FALLOW DEER.

THE fallow deer is a native of Western Asia ; but has long been domesticated in Great Britain, forming a beautiful ornament

to some of our finest parks and pleasure grounds. The principal difference between this animal and the stag seems to be in the size and form of their horns, and in the skin being marked with numerous, somewhat triangular spots. The horns of the fallow deer are much less than those of the stag, and are broad and palmated at their ends, being better garnished with antlers. The fur is also of a brighter hue. The fallow deer is much less furious than the stag during the rutting season. They never leave their pasture; but generally fight till one buck becomes master of the field. This species associate in herds; and these sometimes divide into two parties, and maintain obstinate battles for some favourite part of the park. Each party has its leader, which is always the oldest and strongest of the herd. The female goes with young eight months, generally producing one, sometimes two, and rarely three at a birth.

In Great Britain, there are two varieties of this animal,—the spotted kind, supposed to have been imported from Bengal, and the deep brown sort, now so common, the last of which was introduced by King James the First, from Norway. He noticed their hardiness in that cold climate; and brought them first to Scotland, and from thence transported them to Epping and Enfield Chases, in England. Their increase has been great; and we can now boast of venison superior to that of every other country. The fallow deer is now common all over Europe; and, in Spain, grows as large as a stag.

THE ROE-BUCK.

THE roe-buck is the smallest of the deer kind, being only about two feet in height, and three feet in length. The horns are from eight to nine inches long, upright, round, and divided into three branches. The body is covered with long hair, of a grayish brown, or a fawn colour above, and ash beneath. This is an elegantly formed animal. Its motions are light and easy. It bounds without effort, and runs with great swiftness. It possesses much cunning; and in the chase eludes its pursuers, by the most subtle artifices, repeatedly returning upon its former steps; and thus confounds the scent. It has been known to

make a great bound to one side, lie down on its belly, with its head laid flat on the ground ; and the hounds have passed it unobserved. They do not congregate in herds ; but each family keep by themselves. The rut is in October. The female goes with young five months ; and generally produces two fawns at a time, and sometimes three.

The roe-buck was at one time very common in Great Britain ; but it is now nearly extinct. It is only to be found in some of the wild Highland districts of Scotland. It is common in various parts of Europe. It is a timid animal, and difficult to tame. The flesh is very fine, and well tasted ; and is in the highest state of perfection at eighteen months.

Some years ago, a roe-buck, after being hunted out of Scotland, found its way into Cumberland, and passed into the woody banks of the Tyne, between Prudhoe Castle, and Wylam, Northumberland. It was repeatedly seen and hunted ; but no dogs were equal to its speed ; and, during a chase, it would frequently cross the river, and, either by swiftness or artifice, always eluded its pursuers. It happened, during the rigour of a severe winter, that, being pursued, it crossed the river upon the ice with some difficulty ; and being much strained by its violent exertions, was taken alive. It was kept for some weeks in the house, and was again turned out ; but all its cunning and activity were gone. It seemed to have forgotten the places of its former retreat ; and, after running some time, it lay down in the midst of a brook, where it was killed by the dogs before any person arrived to rescue it.

THE ELK OR MOOSE-DEER.

THIS is the largest animal of the deer kind, and one of the largest that inhabit the globe. Four of a very small class of this species were measured by Dr Smith, but as they were all young, the extreme limits of their size could not be ascertained from them. A male two years old was seven feet three inches in length ; a female three years old exceeded it by six inches, its height was nearly five feet, the ear was nine inches long, the tail only three. There is a sort of carbuncle or excrescence pendent

from the throat of some; but it is not ascertained whether this is a general characteristic of the animal or belongs only to the male. The tail, as we have seen, is short; the ears large and erect; the hoofs broad. But what chiefly distinguish the elk, are two widely spreading palmated horns of great size, proceeding from the forehead, between two and three feet long; in those of the largest size, between four and five. The animal we have been now describing, is the elk of North America, there called the moose-deer, and by the natives the wampoose. It is often seen larger than the tallest horse, not less than eight or ten feet high, of a dark grey colour, paler on the legs, the hair long and coarse, and forming a kind of mane on the upper part of the neck. The other species is smaller, of a light grey colour, herds in flocks of twenty or thirty, and bears a considerable resemblance to the fallow deer. The larger species is solitary, or found in companies not exceeding four or five.

The motion of the elk is unlike that of the deer; it does not spring on being surprised, but advances with a shambling gait, while the hoofs make a loud clattering noise, and it runs with great speed. It dwells on hills or in woody countries, sometimes choosing open pastures in summer, and retreating to thickets and the banks of lakes or rivers in winter. Its food is the herbage of the ground, or the foliage of young trees. From the shortness of its neck and length of its legs, declivities are principally frequented, for the ease of reaching the ground. In winter it prefers willows and some aquatic plants. The males cast their horns annually in November, and renew them in spring. The females have none, and differ still farther from the male in being inferior in size, of a brownish sandy colour, the hair white at the root, and nearly so in some parts of the surface.

The elk is easily tamed, and is then quiet and tractable; and in its wild state it is harmless and inoffensive. When pursued, in crossing rivers and lakes, it makes no resistance, and boys or women can then destroy it. Mr Hearne relates* that he repeatedly saw many as tame as sheep at the settlement in Hudson's Bay, and that they would follow their keepers or come to meet them, in the same manner as the best domesticated animal would have done. At New York, they have been broke

* Journey from Hudson's Bay.

to harness, and apparently with success. The disposition of the animal renders it favourable for such experiments, and it is not unlikely that it might be naturalized and domesticated in this island.

The elk is found chiefly in the colder climates in the north-eastern parts of Europe and Asia, and in North America. It is, however, also a native of hot climates; Captain Cook saw them at the Cape of Good Hope * five feet high, with horns a foot long. They were handsome creatures, having a beautiful head and neck, slender legs, and soft smooth hair of an ash colour. Their upper jaw is larger than their under; the tail about a foot in length; and the flesh, by the epicures of that country, said to excel the best beef. They run swiftly, and climb the rocks with great agility, though they usually weigh about four hundred pounds. It is evident from this description, that a warm climate is not favourable to the growth of the elk, but tends to reduce it to the character of the deer.

There is a striking peculiarity in the nature of the elk which has given rise to various conjectures. When sprung by the huntsman, it sometimes suddenly falls down, as if in a fit; and then as suddenly recovering itself, sets off at a great speed. An opinion has hence prevailed that it is subject to epilepsy, and a part of the animal's hoof has been worn as an amulet or charm against that distemper. Horses, it is said, have been seen with the same peculiarity; and we know that there are some of the smaller tribes of animals, such as the termes or death-watch, which counterfeit death on being alarmed.

The elk presents great temptations to the cupidity of the huntsman. Its flesh is good and nutritious; the skin serves for covering the tent of the Indian, for his shoes, belts, and all the rest of his clothing; while ladles are made of the horns. As the fur of wild animals is richer in winter, that season is commonly selected for its capture. The Indians, near Hudson's Bay, can easily run it down, for though endowed with sufficient speed, the elk is tender-footed and short-winded, so that a good runner will generally tire it in less than a day, and frequently in six or eight hours. However, the huntsman has been known to continue the pursuit two days before coming up with the game.

* Voyages, vol. i. p. 318.

On such occasions, the Indians go lightly clothed, to preserve themselves from fatigue. When the elk can advance no farther, it stands and keeps its pursuers at bay with its head and fore-feet: by means of the latter it can kill a dog or even a wolf, and people who suddenly rush upon it are in danger of serious injury; therefore, the Indians, who are without fire-arms or bows and arrows, kill the animal with a knife fixed to the end of a long stick. This kind of pursuit is much facilitated by the state of the snow: for a heavy animal like the elk, when a thaw begins, sinks deep at every step, while the huntsman is kept up by snow shoes on the surface. Snares are also set for the elk: its approach to lakes and rivers is watched, when it is shot with guns or arrows; dogs are likewise used in the chase, and there are various other modes of capture.

Among the fables regarding the elk, there is one, that in those found in Muscovy the legs are jointless. They are not so; but still they are stiff and more inflexible than those belonging to other classes of the deer kind. Nor is this without its uses to the animal. Being particularly a native of cold climates, it has frequent occasion to traverse the ice, and by means of the rigidity of the joints of its legs, it is better able to do so without slipping. By this means, it is also frequently enabled to escape from wolves or such beasts of prey, as have not the same facility in walking on a slippery surface.

The elk, like some others of the deer kind, is liable to the annoyance of flies; to avoid which, the animal plunges into marshes, where he often remains night and day, feeding upon the water plants, and occasionally lifting his head only above the surface. The North American Indians believe that the moose has the power of remaining entirely under water, as appears by the following notice contained in Tanner's Narrative: "There is an opinion prevalent among the Indians, that the moose, among the methods of self-preservation, with which he seems better acquainted than almost any other animal, has the power of remaining a long time under water. Two men of the band of Wage-to-toh-gun, whom I knew perfectly well, and considered very good and creditable Indians, after a long day's absence on a hunt, came in and stated, that they had chased a moose into a small pond, and that they had seen him go to the middle of it and disappear; and then choosing

positions from which they could see every part of the circumference of the pond, smoked and waited until near evening; during all which time they could see no motion of the water or other indication of the position of the moose. At length, being discouraged, they had abandoned all hope of taking him, and returned home. Not long afterwards, came a solitary hunter loaded with meat, who related, that having followed the track of a moose for some distance, he had traced it to the pond before mentioned; but having also discovered the tracks of two men made at the same time as those of the moose, he concluded they must have killed it. Nevertheless, approaching cautiously to the margin of the pond, he sat down to rest. Presently, he saw the moose rise slowly in the centre of the pond, which was not very deep, and make towards the shore where he was sitting. When he came sufficiently near, he shot him in the water. The Indians consider the moose shy and more difficult to take than any other animal."

THE REIN-DEER.

THE Rein-Deer, which supplies the Laplander with those advantages which we derive from the horse, the cow, and the sheep, seems confined to that country where he is so essentially useful; and has been denied to those regions, where the same services are obtained in greater abundance from more various sources. It has been indeed supposed, the opinion originated with Buffon, that the rein-deer once existed among the Alps and Pyrenees. The notion was founded on a passage of Gaston de Foix, which stated that he had seen the rein-deer in Savoy and Berne; but the examination of a copy of his work, presented by the author himself to Philip of Burgundy, discovered, instead of these two places as the locality in which he had seen it, Norway and Sweden. Indeed, it seems incapable of existing except in the very coldest of the northern climates. There it has been domesticated from the earliest ages. On it the Laplander depends for subsistence and warmth, and the continuance of that intercourse by which civilization is maintained and advanced. Travelling is with them suspended during the summer. It is in the

winter, when the snow affords a smooth tract for his sledge, that the Finmark dealer travels from his native wilds, to dispose of his produce in the markets of Tornea, and Stockholm. By this animal are the extremities of that snowy region, which seems separated from all mankind, connected together. Harnessed to a sledge, the rein-deer will draw about 300 lbs. ; but the Laplanders generally limit the burthen to 240 lbs. The trot of the rein-deer is about ten miles an hour ; and their power of endurance is such, that journeys of one hundred and fifty miles in nineteen hours are not uncommon. There is a portrait of a rein-deer in the palace of Drotningholm (Sweden), which is represented, upon an occasion of emergency, to have drawn an officer with important despatches the incredible distance of eight hundred English miles in forty-eight hours.* This event is stated to have happened in 1699, and the tradition adds, that the deer dropped down lifeless upon his arrival. Pictet, a French astronomer, who visited the northern parts of Lapland in 1769, for the purpose of observing the transit of Venus, was anxious to know the speed of the rein-deer ; and therefore started three rein-deer in light sledges, for a certain short distance, which he accurately measured. The following was the result :—" The first deer performed 3089 feet, 9 inches, in two minutes, being at the rate of nearly 19 English miles in an hour, and thus accomplishing 25 feet, 9 inches, in every second. The second did the same in three minutes ; and the third and last deer, in three minutes and twenty-six seconds. The ground in this race was nearly level."

The rein-deer requires considerable training to prepare him for sledge-travelling ; and he always demands an experienced driver. If the animal is not well broken-in he is unmanageable ; and if the driver is inexpert, the deer has sagacity enough to turn round and rid himself of him by the most furious assaults. Mr De Broke several times felt the inconvenience of ill-trained deer, in his winter journey across Lapland. " The deer we had procured were as unmanageable and unruly as deer could well be, being none of them well broken in ; and our first set off was by no means a pleasant one, as, after tumbling with the quickness of lightning down the steep bank of the river, the deer proceed-

* De Broke's Winter in Lapland.

ed at full gallop across a very rough and broken country, with steep and slippery descents. It was quite impossible, from the nature of the ground, to prevent being frequently rolled over in the pulk (sledge); and, when this was the case, the strength and freshness of the deer, and the good order of the snow, which was very hard, made them regard very little the additional weight caused by the prostrate position of the sledge; so that they continued to follow, at full speed, the rest of the deer, leaving the unfortunate wight at their heels to find his balance again as well as he could. Notwithstanding that which had been harnessed to my pulk was by no means a lamb in quietness, I had good reason to congratulate myself upon having escaped the animal which one of the party had to his share, and which was a deer of the wild breed, that had been caught when young by the Laplanders. In size it was larger than the others, thinner, with more appearance of bone, and considerably stronger. With respect to any command over it, this was quite out of the question; and it dragged pulk and driver along with the greatest ease wherever it pleased." Such instances of resistances to their drivers are, however, exceptions to the general character of the rein-deer. He is ordinarily so docile that he scarcely needs any direction; and so persevering that he toils on, hour after hour, without any refreshment, except a mouthful of snow which he hastily snatches. "We again resumed our course, the deer appearing no way fatigued, and proceeding so steadily and quietly, that the act of driving them was merely holding the rein, which became at last so tedious, that some of the party behind lashed their deer to the sledge before, the whole keeping up a long steady trot. This is the usual travelling pace of the rein-deer when performing long journeys; for though, occasionally, the animal may proceed at a gallop for some miles on first starting, or in those situations where the snow is very good, it is natural to suppose it will gradually relax its pace. The speed of the party, however, is entirely dependent upon the foremost deer, by which the motions of those behind are almost entirely regulated; and I observed, that, when we first set off in the morning, the instant it had its head at liberty, it almost invariably commenced a full gallop, the rest all following at a similar pace, as if moved by one common impulse. This was kept up by them as long as they remained unexhausted, the driver having little

power to stop the animal, from the rein being merely attached in the manner it is to the head. The eagerness of the deer to set off is frequently followed by ludicrous scenes, the driver being often placed in an awkward situation, if he be inattentive, and do not happen to have the rein in his hand at the moment.”*

The rein-deer, even in a state of domestication, preserves that feeling which leads the whole deer tribe to assemble in herds. This, united with a disposition to follow the leader, so observable among the sheep kind, is shown in the following notice :—
“ In proceeding along the extensive and endless lakes of Lapland, if the number of deer be great, a close and lengthened procession is invariably formed ; each deer following the foremost sledge so closely that the head of the animal is generally in contact with the shoulders of the driver before. Should the guide alter his direction, by making a bend to the right or left, the whole of the deer in the rear will continue their course, till they arrive at the spot where the turn was made. It thus frequently happens, that, when the distance between the foremost and hindmost deer is great, the guide making a bend, considerable saving might be obtained by cutting across. This, however, it is scarcely possible to do ; for should the deer even be pulled by main force out of its former course, it will immediately turn aside from the new direction it is placed in, and regain the old track, in spite of all the driver can do to prevent it. It is useless to contend with the animal ; and the time thus lost might leave the driver at such a distance from the rest of the party as to render it a matter of some difficulty to overtake them. This unwillingness to separate from its companions is one feature of the instinct given to this animal ; and it is the very circumstance that, more than any other, insures the safety of the traveller. Should any accident separate him from the rest of his party, the deer be fatigued, or other occurrences throw him considerably in the rear, if he trust entirely to his deer, it will enable him to overtake the rest though they should be some miles in advance, from the exquisite olfactory sense it possesses. The animal, in this case, holding its head close to the snow, keeps frequently smelling, as a dog would do to scent the foot-steps of its master ; and is thus enabled to follow with certainty

the track the other deer have gone. Were it not for this property of the animal, travelling across Lapland would be not a little hazardous, particularly in those parts where the weather is the darkest, which is generally while crossing the mountains of Finmark. It often happens that the party is unavoidably scattered, and the sound of the bell enables them to rejoin each other. The bells, however, should the weather be very thick and stormy, can only be heard a short distance off; and it is then by the sagacity of the deer alone that the difficulty is surmounted.*

The travels of the Laplander are not always however made for his own gain or convenience; sometimes the migrations which he undertakes are for the preservation of the deer. "The causes that induce," says De Broke, "nay, even compel these people to undertake their long and annual migrations from the interior parts of Lapland to its coast, though they may appear singular, are sufficiently powerful. It is well known, from the account of those travellers who have visited Lapland during the summer months, that the interior parts of it, particularly its boundless forests, are so infested by various species of gnats and other insects, that no animal can escape their incessant persecutions. Large fires are kindled, in the smoke of which the cattle hold their heads, to escape the attack of their enemies; and even the natives themselves are compelled to smear their faces with tar, as the only certain protection against their stings. No creature, however, suffers more than the reindeer from the larger species (*œstrus tarandi*), as it not only torments it incessantly by its sting, but even deposits its egg in the wound it makes in its hide. The poor animal is thus tormented to such a degree, that the Laplander, if he were to remain in the forests during the months of June, July, and August, would run the risk of losing the greater part of his herd, either by actual sickness, or from the deer fleeing of their own accord to mountainous situations to escape the gad-fly. From these causes, the Laplander is driven from the forests to the mountains that overhang the Norway and Lapland coasts, the elevated situations of which, and the cool breezes from the ocean, are unfavourable to the existence of these troublesome

* De Broke, p. 462.

insects, which, though found on the coast, are in far less considerable numbers there, and do not quit the valleys; so that the deer, by ascending the highlands, can avoid them." The wild herds of rein-deer ascend the mountains in the summer to free themselves from these parasitical insects of the forests; and the tame deer often wander from their masters for the same object. These insects, particularly the *æstrus*, so terrify the herds, that the appearance of a single one will render them furious. The Laplanders say, that one of their objects in going to the coasts is, that the deer may drink the sea-water; and that he takes one draught, which destroys the larvæ of the fly, but never repeats it.

According to the accounts of the people of Finmark, the attacks of these fearful creatures are not the only torments of the rein-deer. An insect, or rather worm, the *furia infernalis*, originally mentioned by Linnæus, is said to produce the most fatal effects upon the herds. Linnæus, indeed, altered his opinion late in life as to the existence even of this worm; and the Swedish naturalists now treat it as entirely fabulous. Dr Clarke, however, supposes himself to have been wounded by this very creature during his travels in Sweden. The Laplanders themselves firmly believe in its existence: and its fatal powers, as represented by these people, are thus described by De Broke:—"In 1823, the Laplanders are stated to have suffered so greatly in their herds, that five thousand head died from the sting of this creature; and that even the wolves and other animals, that preyed upon the dead carcasses, caught the infection, and died with the same symptoms. A Laplander, who possessed five hundred deer, on perceiving the destruction among them, thought it best to kill the whole herd; but so quickly did its ravages spread, that, before he could accomplish his purpose, they all died. Great numbers of cattle and sheep were likewise destroyed by its attack, and it fell in some degree upon the human species, a few having become victims to it. A young girl, who was shearing some sheep that had died from the attack of the *furia*, felt, while thus employed, a sudden pain in one of her fingers, which rapidly increased, and on examining the part, she found a small puncture, like the prick of a needle; her master, who was by, had the presence of mind to cut the finger off on the spot, and it was the means of saving her life. The pest is stated to have been confined to Russian and Swedish

Lapland, and did not spread higher than Muonioniska. Norwegian Lapland fortunately was not visited with this calamity; and, in order to prevent it from being introduced, all furs, during the year of its prevalence, were forbidden to be purchased."

We shall conclude our notice of the rein-deer, by an account of the hunting of the animal in its wild state, as related by Lyon and Franklin:—"The rein-deer," says Lyon, "visits the polar regions at the latter end of May or the early part of June, and remains until late in September. On his first arrival he is thin, and his flesh is tasteless, but the short summer is sufficient to fatten him to two or three inches on the haunches. When feeding on the level ground, an Esquimaux makes no attempt to approach him, but should a few rocks be near, the wary hunter feels secure of his prey. Behind one of these he cautiously creeps, and having laid himself very close, with his bow and arrow before him, imitates the bellow of the deer when calling to each other. Sometimes, for more complete deception, the hunter wears his deer-skin coat and hood so drawn over his head, as to resemble, in a great measure, the unsuspecting animals he is enticing. Though the bellow proves a considerable attraction, yet if a man has great patience he may do without it, and may be equally certain that his prey will ultimately come to examine him; the rein-deer being an inquisitive animal, and at the same time so silly, that if he sees any suspicious object which is not actually chasing him, he will gradually, and after many caperings, and forming repeated circles, approach nearer and nearer to it. The Esquimaux rarely shoot until the creature is within twelve paces, and I have frequently been told of their being killed at a much shorter distance. It is to be observed that the hunters never appear openly, but employ stratagem for their purpose; thus, by patience and ingenuity, rendering their rudely-formed bows, and still worse arrows, as effective as the rifles of Europeans. When two men hunt in company, they sometimes purposely show themselves to the deer, and when his attention is fully engaged, walk slowly away from him, one before the other. The deer follows, and when the hunters arrive near a stone, the foremost drops behind it and prepares his bow, while his companion continues walking steadily forward. This latter, the deer still follows unsuspectingly, and thus passes near the concealed man, who takes a deliberate aim and kills the animal.

When the deer assemble in herds, there are particular passes which they invariably take, and on being driven to them are killed by arrows by the men, while the women with shouts drive them to the water. Here they swim with the ease and activity of water-dogs, the people in kayaks chasing and easily spearing them; the carcasses float, and the hunter then presses forward and kills as many as he finds in his track. No springs or traps are used in the capture of these animals, as is practised to the southward, in consequence of the total absence of standing wood." Captain Franklin describes the mode in which the Dog-rib Indians kill the rein-deer, which he had from Mr Wentzel, who resided long amongst that people:—"The hunters go in pairs, the foremost man carrying in one hand the horns and part of the skin of the head of a deer, and in the other a small bundle of twigs, against which he, from time to time, rubs the horns, imitating the gestures peculiar to the animal. His comrade follows, treading exactly in his footsteps, and holding the guns of both in a horizontal position, so that the muzzles project under the arms of him who carries the head. Both hunters have a fillet of white skin round their foreheads, and the foremost has a strip of the same round his wrists. They approach the herd by degrees, raising their legs very slowly, but setting them down somewhat suddenly, after the manner of a deer, and always taking care to lift their right or left feet simultaneously. If any of the herd leave off feeding to gaze upon this extraordinary phenomenon, it instantly stops, and the head begins to play its part by licking its shoulders, and performing other necessary movements. In this way the hunters attain the very centre of the herd without exciting suspicion, and have leisure to single out the fattest. The hindmost man then pushes forward his comrade's gun, the head is dropped, and they both fire nearly at the same instant. The deer scamper off, the hunters trot after them: in a short time the poor animals halt, to ascertain the cause of their terror; their foes stop at the same moment, and having loaded as they ran, greet the gazers with a second fatal discharge. The consternation of the deer increases; they run to and fro in the utmost confusion; and sometimes a great part of the herd is destroyed within the space of a few hundred yards."

THE HOG KIND.

THE WILD BOAR.

THIS is the original, from which all the different kinds of the tame hog have sprung. He is not subject to the varieties of the domestic races, but is uniformly of a brindled or dark gray, inclining to black. His snout is longer than that of the tame hog, his ears short, and pricked. He has formidable tusks in each jaw, sometimes nearly a foot long, those in the upper jaw, bending upwards in a circular form, exceedingly sharp, and those with which the animal defends himself and frequently inflicts mortal wounds.

The wild boar is to be found in various parts of Europe and Asia, and in Africa. The hunting of this animal has always afforded a rather barbarous sport to the natives of the countries in which it is to be found. The season for this sport is in the beginning of winter. The older boars are preferred, as turning sooner upon the dogs. The boars leave a strong scent behind them, so that ordinary mastiffs are preferred for the chase. The huntsmen ride with the dogs, and encourage them at the same time that, by the spear, they endeavour to dishearten the boar. The spear is generally directed towards the front of the animal's head, but cautiously, for were the boar to seize the spear, which it attempts to do, it would wrest it from the hand of the hunter, who, unless supported, would fall a victim to its strength and ferocity. There are generally more hunters than one; the boar is called off by each as he provokes it, and the animal thus generally perishes by a system of alternate attack.

The boar was a very formidable animal among the savage nations of antiquity ; often laying waste whole provinces, and its destruction conferring a claim to the title of hero, on the person who was successful in killing it :

Where Calydon on rocky mountain stands
Once fought the Ætolian and Curetian bands ;
To guard it those, to conquer these advance,
And mutual deaths were dealt with mutual chance.
The silver Cynthia bade contention rise,
In vengeance of neglected sacrifice ;
On Ceneus' fields she sent a monstrous boar,
That levelled harvests and whole forests tore,
This beast, when many a chief his tusks had slain,
Great Meleager stretch'd along the plain, &c.

POPE'S HOMER'S ILIAD, ix.

The victory was not always on the side of the hero. The death of Adonis, so celebrated in antiquity, was occasioned by a boar :

By chance the dogs, pursuing long before,
His scenting footings had dislodged a boar,
Whom, rushing from his covert, the bold youth
Obliquely wounds. The boar, with crooked tooth,
Writhes out the javelin, with his blood embrued,
Who now the safety-seeking youth pursued,
Sheathing his tushes in his groin, and threw
To earth the dying boy.

SANDYS' OVID'S MET. X.

The skin of the boar is of remarkable strength and thickness, capable of resisting or impeding the progress of very powerful weapons. In the year 1787, a boar of an extraordinary size near Cognac, in Angoumois, resisted all the attempts of the hunters, and killed several dogs and men whenever he was attacked. He was at length slain, and several bullets were found between his skin and flesh. Of the power which the animal has of enduring wounds with the spear, the following notice by Bruce* furnishes a proof. " We pitched our tent in a small plain by the banks of a quick clear running stream ; the spot is called Mai-Shum. A peasant had made a very neat little garden, on both sides of the rivulet, in which he had sown abundance of onions and garlic, and he had a species of pumpkin

* Travels, vol. iv. p. 336.

which I thought was little inferior to a melon. This man guessed by our arms and our horses that we were hunters, and he brought us a present of the fruits of his garden, and begged our assistance against a number of wild boars, which carried havoc and desolation through all his labours, marks of which were indeed too visible every where.—Amongst us all we killed five boars, all large ones, in the space of about two hours; one of which measured six feet nine inches; and though he ran at an amazing speed near two miles, so as to be with difficulty overtaken by the horse, and was struck through and through with two heavy lances loaded at the end with iron, no person dared to come near him on foot, and he defended himself above half an hour, till having no other arms left, I shot him with a horse-pistol.”

The rajahs of some of the northern provinces of India have an ungenerous mode of shooting the wild boar. On the brow of a hill they build little clay fortresses, at the foot of which a quantity of food is scattered every evening. The voice and person of their feeder are at length rendered familiar to them, and they will take their meal with considerable confidence as soon as he has retired to a small distance. The rajah conceals himself in the fortress, and when the unsuspecting animals come to feed, he shoots them through a hole in the wall.

Nearly resembling the common hog in appearance, but possessing the ferocity and strength of the wild boar, is the boar of Ethiopia. It is distinguished from both, however, by the breadth of its snout, by two great lobes or wattles under the eyes, placed so as to prevent the sight of any thing immediately beneath them, but above all, by the habit of living in holes underground. They inhabit the hottest parts of Africa, and as they are of a savage disposition, and often rush to the attack unexpectedly, their retreats are cautiously avoided by the natives. A boar of this species was, in 1765, sent by the governor of the Cape of Good Hope to the Prince of Orange. From confinement and attention he became tolerably mild and gentle, except when offended, in which case even those persons to whose care he was intrusted were afraid of him. In general, however, when the door of his cage was opened, he came out in perfect good humour, frisked about in search of food, and greedily devoured whatever was given him. He was one day left alone in the court-yard for a

few minutes, and on the return of the keeper was found busily digging into the earth, where, notwithstanding the cemented bricks of the pavement, he had made a very large hole, with the purpose, as was afterwards conceived, of reaching a common sewer that passed at a considerable depth below. When after long confinement he was set at liberty, for a little while he was very gay, and leaped about in an entertaining manner.

During Sparrman's residence in Africa, he witnessed a curious method by which these animals protected their young when pursued. The heads of the females, which at the commencement of the chase had seemed of a tolerable size, appeared, on a sudden, to have grown larger and more shapeless than they were. This he found to have been occasioned by the fact, that each of the old ones, during its flight, had taken up and carried forward a young pig in its mouth; and this explained to him another subject of surprise, which was, that all the pigs he had just before been chasing, with the old ones, had suddenly vanished.

The boar is considered unclean, both by Christians and Mahometans in the regions of Northern Africa; it is consequently not much persecuted by the hunter, and should have multiplied, were it not, like many other beasts, destroyed when young by the voracious hyæna.*

THE HOG.

THE effect of domestication on the larger animals, seems to be a diminution of their powers of resistance or defence, no longer necessary to their safety; and on account of the want of free exercise, an increase of size, attended by a relaxation of the fibres and frame of the body. On these accounts, domestication has told with considerable disadvantage on the hog. By the diminution of the size of its tusks, and of its inclination or power to use them, it ceases to be very formidable; and by luxurious habits, by overfeeding, and indolence, the animal that fearless ranges the forest, becomes one, whose sole delight it seems to be, to rise to eat, and to lie down to digest; and that animal,

* Bruce's Travels, Appendix, p. 191.

whose external appearance, beyond that of any other quadruped, testifies the gluttony of its disposition and of its practices.

The hog uses considerable selection in its vegetable diet, but it compensates itself for the loss which its appetite might thus sustain, by occasional recourse to animal food. While digging for roots, it does not reject worms or frogs; it will eat the offals of markets, or putrid flesh, and will occasionally chew bones. In the island of Sumatra, it feeds upon crabs as well as vegetables. The following statement, made a few years ago, by a gentleman in Stanbridge, develops the carnivorous propensities which the hog sometimes, in a condition of perfect domestication, discovers, the variety too of animals which it is inclined to devour:—"I had a pig," says this writer, "of the Chinese species, a most voracious fellow, but through necessity I have lately been obliged to have him killed, finding him incompatible with the safety of my rabbits, hens, and ducks. Previous to possessing him, I had a small warren of about forty yards square, walled in, and well stocked with various coloured rabbits, which I had been at infinite pains to collect. But unfortunately, one day a rabbit having intruded into his sty, the pig immediately caught and devoured it. This having given him an opportunity of knowing the agreeable flavour of rabbit, he next day when let out directed his course to the warren, and soon was successful in securing one; he then returned to his sty, and consumed it with the greatest avidity. After this circumstance occurred, he was confined three weeks, but being again set at liberty, he immediately returned to his favourite pursuit, and after trying various manœuvres for the space of a quarter of an hour, he seized another rabbit, and was returning, when I ordered my servant to take it away; unluckily for the servant, the pig, after trying many devices to get by him, crouched for a moment, and then running furiously at him, seized on his leg, lacerating it so severely, that he was confined to the house for six weeks. So greedy was the pig, that while the man was limping towards the house, he actually went back to his prey, and carried it off victoriously. Being at a party the next day, and relating the above, a gentleman in company appeared to doubt the veracity of it. I asked him, with the rest of the party, to dine with me the following day, that they might witness the exploits of the creature. They all attended at an early hour. No sooner had

we released him, than off he went with the most voracious eagerness, and entered the warren through a hole in the wall; but he was not quite so successful to-day, for after making many fruitless attempts, most of the rabbits were driven to their burrows. He now seemed, as we supposed, despairing of success, as he laid down amongst some furze, but on our returning to the house, we were surprised by the cry of his victim, and immediately turning round, saw him coming through the hole in the wall with a fine black rabbit. The gentleman who doubted the facts over night, nearly met the fate of my servant; but by actively springing over him at the moment the furious animal was seizing his legs, he escaped unhurt. After showing his dexterity to many more gentlemen, I devised means to keep him out of the warren. The carnivorous animal then took to my ducks and hens; still, however, I put up with his depredations while he confined himself to my own yard, but having visited a neighbour's, and killed two ducks and a favourite Guinea-hen, and much frightened the lady who went to drive him away, I was obliged to kill him the next morning.*

It is not surprising, that with such voracious propensities, the hog should sometimes grow to an excessive size. One, which about four years ago was in the possession of a Mr Luntton, at Bodmain, measured nine feet in length, seven feet five inches in girth, and weighed eight hundred and fifteen pounds. This size it had attained before it was twenty-two months old. Some have weighed twelve hundred pounds. The sow, particularly that from China, which has been very extensively mixed of late with the breed of this country, is also very prolific. It produces twice in the year, and from ten to twenty at a litter: a person in Perth had one that littered twenty-nine pigs; and another, who lived in Leicestershire, had one that produced three hundred and fifty pigs in twenty litters. From such a rapidly multiplying progeny, it is evident, the whole stock in Europe could be speedily replaced.

Yet the hog is not without a certain degree of sagacity. Their sense of smell is far from being blunt; there is a notice of one having been taught to perform the service of a pointer, and find game. A gamekeeper of Sir Henry Mildmay broke a

* *Sporting Magazine*, New Series, vol. vii. p. 163.

black sow to find game, back and stand to her point nearly as steadily as a well-bred dog. The sow was a thin long-legged animal of the New Forest breed. When young, it manifested a great partiality for some pointer puppies, and it occurred to the gamekeeper, that as he had often succeeded with obstinate dogs, he might attempt to break a pig. He enticed her to follow him by bits of barley-meal pudding, which he carried in one of his pockets, while the other was filled with stones, which he threw at his pupil when she misbehaved, as she would not allow herself to be caught and corrected like a dog. Under this system she proved tolerably tractable. When she came on the cold scent of game she slackened her trot, and gradually dropped her ears and tail till she was certain, and then fell down on her knees. As soon as the game rose she returned, grunting for her reward of pudding. When the gamekeeper died, his widow sent the pig to Sir H. Mildmay who kept it for three years, and often amused his friends by hiding a fowl among the fern in some part of the park, and bringing out the pig, which never failed to point at it in the manner described. Sometime after, a great number of lambs were lost nearly as soon as they were dropped, and a person being sent to watch the flock, detected the sow in the act of devouring a lamb. This carnivorous propensity was ascribed to her having been accustomed to feed with the dogs on flesh; but it obliterated the memory of her singular sagacity, and she was killed for the benefit of the widow of the gamekeeper who had trained her.* An animal possessing so good a sense of smell, readily ascertains where those roots on which it feeds are to be found. In some parts of Italy, hogs are used for hunting truffles, which grow a few inches deep in the ground. A cord is tied round the hind-leg of one of the animals, it is driven into one of the pastures, and wherever it stops and begins to root with its nose, that species of mushroom is always to be found. The hog also discovers its sensibility by being peculiarly affected from the approach of a storm or strong wind, running about its sty in great agitation, and carrying straw as if to provide against the effects.

If the hog in its domesticated state does not altogether lose the acuteness of the senses which belong to its natural condition,

* See Goldsmith's *Natural History*, vol. ii. p. 151 n.

neither can we be always assured that it has laid aside its ferocity. It is indeed generally sluggish and inactive, attached in a small degree to the persons that it commonly sees, and especially to its feeders, yet it occasionally breaks out into enormities that discover its savage disposition. A woman residing near Sligo having occasion to go to a neighbouring well for water, left her infant sleeping in its cradle. During her absence nine swine entered the house, dragged the child from the cradle and commenced tearing it to pieces. The child's cries attracted the notice of some persons passing, who ran into the house and drove off the swine, but not till the child was so much injured that it expired in a few minutes.—A few years ago, a dealer in hogs was driving a large boar which he kept; when near the canal bridge in Maiden-lane, the beast turned on him with the utmost ferocity, and inflicted with its tusks several wounds on his abdomen. He was immediately placed on a cart for conveyance to St Bartholemew's Hospital, but he died on the way.

The strength of the hog and the formidable nature of those tusks with which it is furnished, render it a formidable opponent to most beasts of prey, but it adds in some cases to the force which it individually possesses, the advantages of acting in concert with its own kind. In the United States the hogs are often allowed to run almost wild among the woods, which abound in acorns, their favourite food, and they then become very active and fierce. A gentleman travelling some years ago through the wilds of Vermont, observed before him a herd of swine to which his attention was still farther called by the appearance of agitation which they exhibited. He perceived that they had secured their pigs in the centre of the herd, in the same manner as wild sheep do their lambs, and that the older hogs were arranged around them in a conical figure, having their heads all turned outwards. At the apex of this cone stood a huge boar, the master of the herd. He now observed that a famished wolf was attempting by various methods, to seize one of the lesser hogs in the middle, the large boar always presenting himself to its attacks, and the hogs dexterously accommodating themselves to the change of position. The attention of the traveller being a moment withdrawn, when he turned to view the combatants the herd had dispersed and the wolf was not to be seen. On riding up to the spot, he found the wolf lying dead on the ground with

a rent in his side more than a foot in length, which the boar had no doubt on a favourable opportunity inflicted.*

Somewhat analogous to the military are the naval tactics of the hog; for there is a species of the animal inhabiting the island of Sumatra, which at certain times of the year swims in herds of sometimes not less than a thousand, from one side of the river Siak to the other, a breadth of three or four miles, and returns after a stated period. The form of the wedge, indeed, is in this case laid aside for that of the column; but the boars still take the lead, followed by the females and the young, all in regular rows and each resting its head on the hinder parts of the one preceding. They are however particularly exposed at these times to the attack of the Salettians, a distinct tribe of the Malays, who occupy the shores of the Siak. These go out in flat boats, throw mats before the leaders of as many of the rows as they can reach, and though the row perseveres in its forward motion, even when the leader is blinded, still their whole progress is so much impeded that they are easily pierced by the hunters who are furnished with javelins for this purpose. The animals when killed are picked up and carried off in the larger boats which follow.

We shall conclude our notices of the hog by the mention of an extraordinary dwarf-pig, possessed a few years ago by Mr Knell, near Maidstone, which weighed only fourteen ounces, was seven inches in length from the snout to the end of the tail, five inches and a half round the body, and three inches three quarters in height. It was produced at a litter, of which the others were of the ordinary size, had a head rather larger in proportion to its body, was in perfect health, squeaked loud and ran fast. It likewise fed very well, but what effect this had in gradually assimilating its appearance to that of the rest of its species, we are not informed.

* It has been remarked, that the Romans, among their various methods of drawing up their forces in the field of battle, had one of the same nature as that now described which they called the wedge, or hog's head. The allusion, however, we need not suppose to be made to this practice of herds of swine, but to the shape of the head of the animal.

THE PECCARY.

THE distinctions between this animal and the hog, though not drawn from external appearance, are decided. The head is indeed shorter, the snout proportionally longer, and the tail so flat and so concealed among the bristles of its skin, that it has been said to be without one; but what chiefly distinguishes it, not only from the hog, but from all other animals, is a large gland immediately under the skin on the middle of the loins. When killed, this must be immediately cut off; for, if the operation were deferred only half an hour, the flesh would become unfit to be eaten. They are not nearly so prolific as the hog; and this circumstance, along with the fetid odour of their glands, has prevented them from undergoing extensive domestication. They are left to the forests, which they prefer, and to the place where they were propagated, and which they do not generally choose to leave.

When taken young they may be domesticated like the hog. One which was in the possession of Mr Pidcock, of Exeter Change, was so perfectly tame as to be allowed the range of one of the principal apartments in the menagerie. It is a native of South America, and is sometimes described under the name of the Mexican hog.

THE BABYROUESSA.

THIS animal is supposed to be the one mentioned by Ælian, under the title of the four-horned, and by Cosmeo, under the name of the swine-deer. In both of these allusion is made to the distinguishing characteristics of the animal,—its four tusks, the two strongest of which proceed from the under jaw like those of the wild boar; the other two rise like horns on the outside of the upper jaw, just above the nose, and extend in a curve over the eyes, almost touching the forehead, and fully twelve inches in length. They are of beautiful ivory, but not so hard as those of the elephant.

The form of the animal is not so heavy as in the case of the

other species of the hog ; it is covered with a short wool-like hair, of a brownish colour ; the skin is thin, and the flesh said to be palatable. Its voice resembles that of the pig. Its sense of smell is very acute. When hunted it flies towards the water, if there be any near. It inhabits the islands in the Indian Archipelago, and swims readily from one to another. Though an animal long discovered, its habits are little known, and no perfect specimen of it has ever been brought to Europe.

The singular tusks of the babyrouessa have been very pointedly noticed by Paley,* as an instance of an extraordinary structure having an unexpected use. " It has two bent teeth more than half a yard long, growing upwards, and (which is the singularity) from the upper jaw. These instruments are not wanted for offence, that service being provided for, by two tusks issuing from the under-jaw and resembling those of the common boar ; nor does the animal use them for defence. They might seem therefore to be both a superfluity and incumbrance. But observe the event :—the animal sleeps standing ; and in order to support its head, hooks its upper jaws upon the branches of trees."

* Nat. Theology, p. 274.

OF THE CAT KIND.

THE animals of the cat kind are distinguished, among quadrupeds, for their power, beauty, agility, and ferocity. As a class, they are the most formidable of all other animals, and the least useful to man. On the score of utility, indeed, the only one which has any claims to public attention is the smallest of the tribe,—the Domestic Cat, or *the Cat, par excellence*; and yet its usefulness is by many held to be apocryphal, or is not generally recognised to the extent which it merits. This, however, is but one of several acts of injustice done to the character of grimalkin, which it shall be our pleasure, as well as duty, to expose. The cat genus embraces the lion, the tiger, the panther, the leopard, the puma, the jaguar, the ounce, the ocelot, &c. Of all these we shall have something pleasant to record in their proper order, taking up, in the first place, the common cat, according to the arrangement of Goldsmith.

THE CAT.

It is the misfortune of cats, that they are generally brought into contrast with dogs, whose fidelity, attachment, and sagacity are so often subjects of admiration. But it is obviously unfair to bring into comparison animals differently constituted, and dissimilar both in their pretensions and capabilities. Mankind, in such estimates, are apt, besides, to be influenced by selfish motives, and to applaud those qualities only which minister to their own interest, importance, or gratification. The

character of the dog, for example, however admirable in our own eyes, would, *if viewed in a universal spirit*, be open to impeachment. His attachment and fidelity are certainly very gratifying, so far as *we* are concerned; but it cannot be denied, that he is *a traitor to his own order*, and a terror, not to speak of a disgrace, to all his four-footed connexions. He abandons his kind, and becomes the willing slave and fawning parasite of man—ready to wage war with every creature, his own tribe not excepted. There is no indignity, whether of lash or kick, from the hands of his master, to which he will object, and no paltry office, not even that of turnspit, too humiliating for him to fulfil. He will go crouching through the fields to point out poor partridges for destruction, and condescend to watch wood-yards with a chain about his neck, as if he had a standing interest in fir deals and splinters! Look if the cat will so far forget her natural dignity, or outrage any of her inherent propensities, for the gratification of man. *She* is connected with royalty, the head of her family being the lion, the king of the forest—and she therefore appropriately leads a luxurious life, having a proper aristocratic indifference to every thing which does not minister to her own pleasure. It must be from her relationship, that the adage has arisen, “A cat may look at a king.” Like the rest of the nobility, she is much given to hunting, birding, and fishing, but hates all other sorts of exertion. When not engaged in the chase after “mice and such small deer,” she loiters by the fireside, on chair or sofa, humming a tune, in falsetto voice, or feeling with her paw the length of her whiskers. She is a courtier by profession, and loves to bask in the sun. In every revolution, she takes care to “light on her feet.” She is more attached to *places* than persons, being generally ready to sacrifice the one for the other. She keeps fashionable hours, for she is generally up all night at play, and goes to bed when the sun rises. She is also passionately fond of serenading on the house tops, when all the “lower classes” are asleep. She “stands or falls by her order,” and by the merits of her order she should alone be judged.

However cheaply cats may be now held in this country, they were in ancient times and in other countries greatly esteemed and even venerated. This may be inferred from the fables of Æsop and Phædrus, in which the cat is frequently made to dis-

play its cunning and sagacity, both as actor and interlocutor. By the Egyptians, cats were considered as an emblem of the moon, and placed upon their *sysstrum*, an instrument of religious worship and divination: to slay a cat was death by law; and the Roman soldier who killed one, ignorantly and unawares, was torn to pieces by the enraged people in the streets. When a cat died, the family to which it belonged mourned, as for a child; it was carried into a consecrated house, embalmed and wrapt in linen, and interred with religious rites at Bulastis, a city of Lower Egypt, being placed in a sepulchre near the altar of the principal temple. Cambyzes conquered Thebes, by placing in front of the Persian army a *corps of cats*, with other animals venerated by the Egyptians; and, not daring to advance to the combat, the Theban garrison fell, as the wily invader had anticipated, an unresisting prey to his stratagem. At the present day, they are still much respected in Egypt. The Mohammedans have an extraordinary veneration for them. Baumgarten saw at Damascus an hospital for cats, which was a large building, walled round, and said to be full of them. This singular institution, it is said, originated in the circumstance of Mahomet having brought with him a cat to Damascus, which he kept carefully in the sleeve of his gown, and fed with his own hands.

It is not known when cats were introduced into this island, or to what country they originally belong, although some suppose them to have been brought to England from Cyprus. It is natural to imagine that their value would be regulated by their scarcity. Southey, in his *History of the Brazils*, narrates that the first couple of cats which were carried to Cuyaba, sold for a pound weight of gold. As there was a plague of rats in the settlement, these cats were purchased as a speculation, which proved an excellent one. The first kittens were sold for the sum of thirty oitavas each. The next generation were worth twenty; and the price gradually fell as the inhabitants became stocked with these beautiful and useful creatures. Montenegro presented to the elder Almagro the first cat which was brought to South America, and was rewarded for it with six hundred pesos.

Camden records a story similar to that famous one of Whittington and his cat,—“How Alphonse, a Portuguese, being wrecked on the coast of Guinea, and being presented, by the

king thereof, with his weight in gold, for a cat to kill their mice, and an ointment to kill their flies, which he improved within five years, to six thousand pounds on the place, and, returning to Portugal, after fifteen years' traffic, became the third man in the kingdom." Sir W. Gore Ouseley quotes a similar legend from a Persian MS.

The laws of Howell Dda, Prince of Wales in the 10th century, give us the exact value of Welsh cats; for the ancient law of Wales estimates a cat at the price of as much corn as would be sufficient to cover her, if she were suspended by the tail, with her fore feet touching the ground. The price of a kitten, before it could see, was fixed at one penny; till proof could be given of its having caught a mouse, at twopence; after which, it was rated at fourpence, which was a great sum in those days, when the value of specie was extremely high. It was likewise required that it should be perfect in its senses of hearing and seeing.

We are informed by Browne, in his *Natural History of Jamaica*, that cats are considered a very dainty dish among the negroes; and Goethe, in his *Rifleman's Comrade*, says,—“At Palmero, some of the soldiers caught a cat belonging to a convent, and, having skinned the carcass, it was cut into pieces, and soaked twenty-four hours in vinegar, then anointed with garlic and honey, until the strong flavour had left it, after which it formed an excellent *fricasee*. To be serious,” continues our author, “I can assure my readers, that the flesh of a well fed cat is extremely good. It is indeed, (presuming her to be properly dressed,) not only agreeable in taste, but actually a dainty; and it is imagination and prejudice alone which protect the feline race amongst us from the uses of the gastronomic art.” In former days, cats had a place in the pharmacopeia, sundry medicaments being composed of their head, paws, liver, &c. for the use of invalids.

Among the superstitions connected with cats, Mills, in his *History of the Crusades*, narrates the following custom, as practised by Christians in the middle ages: “At Aix, in Provence, on the festival of Corpus Christi, the finest tom-cat of the country, wrapped in swaddling clothes, like a child, was exhibited in a magnificent shrine to public admiration. Every knee was bent, every hand strewed flowers, or poured incense, and grimal-

kin was treated in every respect as the god of day. But on the festival of St John, poor Tom's fate was reversed ; a number of the tabby tribe were put into a wicker basket, and thrown alive into the midst of a large fire, kindled in the public square by the bishop and his clergy. Hymns and anthems were sung, and processions were made by the people in honour of the sacrifice."

A cat has been at all times an indispensable companion of a witch, and the fact of keeping one formed a confirmatory part of the libel of witchcraft. On Hallowe'en, it was usual in Scotland for families to tie up their cat, in order to preserve it from being used as a poney by the witches that night. Those who neglected this precaution ran the risk of seeing their cat scampering through the fields, with a witch on its back, on the high road to Norway. A *black* cat was commonly sacrificed by the ancients to Hecate, or among the Scandinavians, to Frea, the northern Hecate. A black cat, sent with a prayer book and a bag of sand into a new house, so as to precede the proprietor in possession, was formerly deemed essential to insure prosperity to the person changing his abode. To steal a black cat, and bury it alive, is in the Irish Highlands considered as a specific for a disorder in cattle, termed "blacklegs," which otherwise proves fatal. A black cat is an object of great superstitious aversion to the sailor, nor is it often regarded with more favourable eyes by the landsman.

When cats wash their faces with their paws, it is generally supposed to indicate rain or a storm, and of this opinion was Linnaeus. To dream of cats is said to be unlucky, denoting quarrels and treachery on the part of friends. That cats will suck the breath of children until they die, and that they can play with serpents and remain uninjured, are old prejudices which nobody now believes. A writer in the *Connoisseur* thus ridicules some *frets* regarding cats :— " If the cat turned her tail to the fire, we were to have a hard frost ; if the cat licked her tail, rain would certainly ensue. They wondered what stranger they should see, because puss washed her face over her left ear. The old lady complained of a cold, and her eldest daughter remarked it would go through the family ; for she observed that poor Tab had sneezed several times. Poor tab, however, once flew at one of my cousins, for which she had like to have been destroyed, as

the whole family began to think she was no other than a witch."

Cats possess in an eminent degree the qualities of vigilance, patience, gentleness, and maternal affection. They also manifest a grateful sense of kindness conferred, by purring, rubbing and rolling, licking of the hand extended to caress them, and a gentle undulatory motion of the tail. Although the cat has not the same natural and unshaken attachment for mankind as the dog, yet it often displays unequivocal proofs of regard and affection. The following instances may be given:—

The earl of Southampton, the friend and companion of the earl of Essex in his fatal insurrection, was one day surprised by a visit from his favourite cat, which is said to have reached its master by descending the chimney of his apartment.

M. Zimmerman, a schoolmaster at Thorn, had a cat, which had been the constant companion of one of his sons from his infancy, and they were mutually attached. The child became sick, when the cat kept close to his bed, day and night. He died, and the affectionate cat would not quit his remains till they were interred. She then crept into a retired corner of the house, and, refusing sustenance, pined herself to death.

In a village of Stirlingshire, a poor man, whose domestic habits were very retired, grew weary of life, and stole from the world by that forbidden step, to which too many, becoming the dupes of their own unfounded worldly fears and foolish notions, drive themselves. The only other inmate of his cabin was a favourite cat, who, during the time that the corpse lay in the house, evinced the strongest desire to lie close by it; but this was not permitted by the attendants, partly from superstitious feelings, and also from distrusting the cat's real motives. On the morning after the funeral, a number of schoolboys visited the grave, which, on account of the recent singular circumstances connected with its silent tenant, and from the novelty of its being placed at the outer boundary of the churchyard, claimed their peculiar regard. Their curiosity, however, was much more excited at a very unlooked-for occurrence, in finding a deep hole made into the side of the grave. The story took wing, and the whole neighbourhood was soon astir. The disturbed turf was again restored to its place, and the good folks of the village congratulated themselves on the narrow escape it had made from

the ravages of the churchyard marauders. Another morning followed, and more than ordinary interest seemed to be excited, as numbers made an early visit to the grave. Again the turf was found displaced by some unknown sacrilegious hand, and a hole, darker and deeper dug than ever, yawned into the very bowels of the tomb. What was to be done? While the whole assemblage looked aghast, and communicated with each other only in broken ejaculations and expressions of surprise, their fears were suddenly dissipated, by the "midnight resurrectionist" starting from the dreary hole, in the shape of a poor frightened cat, whose affection for her master had literally followed him to the grave. Her efforts to share his tenement of clay ended not here; for several mornings, fresh proofs were found of her unceasing perseverance: and these were only put a stop to by her death, which, after many an unsuccessful attempt, was at length effected by a gunshot.

"A country gentleman of our acquaintance," says the Editor of the *Edinburgh Evening Courant*, "who is neither a friend to thieves nor poachers, has at this moment in his household, a favourite cat, whose honesty, he is sorry to say, there is but too much reason to call in question. The animal, however, is far from being selfish in her principles; for her acceptable gleanings she regularly shares among the children of the family in which her lot is cast. It is the habit of this grimalkin to leave the kitchen or parlour, as often as hunger and an opportunity may occur, and wend her way to a certain pastrycook's shop, where, the better to conceal her purpose, she endeavours slyly to ingratiate herself into favour with the mistress of the house. As soon as the shopkeeper's attention becomes engrossed in business, or otherwise, puss contrives to pilfer a small pie or tart from the shelves on which they are placed, speedily afterwards making the best of her way home with her booty. She then carefully delivers her prize to some of the little ones in the nursery. A division of the stolen property quickly takes place; and here it is singularly amusing to observe the *sleekit* animal, not the least conspicuous among the numerous group, thankfully mumping her share of the illegal traffic. We may add, that the pastrycook is by no means disposed to institute a legal process against poor Mrs Gib, as the children of the gentleman to whom we allude are honest enough to acknowledge their fourfooted playmate's

failings to papa, who willingly compensates any damage the shopkeeper may sustain from the petty depredations of the would-be philanthropic cat."

A cat belonging to a person named Stankley, who lives adjoining the Dun Cow Inn, near Denistan, is in the habit of going out with the children. In August, 1828, puss entered the house without any of its usual company, rubbed and mewed about Stankley's wife, went out and returned, and repeated these motions so long, that she at length suspected the animal had something in view, followed it out, and, to her astonishment, it preceded her, seemingly delighted that it had gained its object, to some little distance, where her youngest child stuck fast in the mud of a ditch, incapable of moving.

A beautiful cat was brought up in a family, and became extremely attached to the eldest child, a little boy, who was very fond of playing with her. She bore, with the most exemplary patience, any maltreatment which she received from him—and which even good-natured children seldom fail, occasionally, to give to animals, in their sports with them—without ever making any attempt at resistance. As the cat grew up, however, she daily quitted her playfellow for a time, from whom she had formerly been inseparable, in order to follow her natural propensity to catch mice; but, even when engaged in this employment, she did not forget her friend; for, as soon as she had caught a mouse, she brought it alive to him. If he showed an inclination to take her prey from her, she anticipated him, by letting it run, and waited to see whether he was able to catch it. If he did not, the cat darted at, seized it, and laid it again before him; and in this manner the sport continued as long as the child showed any inclination for the amusement. At length the boy was attacked with the small-pox, and, during the first days of his disorder, the cat never quitted his bedside; but, as his danger increased, it was found necessary to remove the cat, and lock it up. The child died. On the following day, the cat, having, probably by accident, been liberated from her confinement, immediately ran to the apartment where she hoped to find her playmate. Disappointed in her expectation, she ran, with symptoms of great uneasiness and loud lamentation, about the house, till she came to the door of the room in which the corpse lay. Here she lay down, in silent melancholy, till she was again

locked up. As soon as the child was interred, and the cat set at liberty, she disappeared; and it was not till a fortnight after that event, that she returned to the well-known apartment, quite emaciated. She would not, however, take any nourishment, but ran away, with dismal cries. At length, compelled by hunger, she made her appearance every day at dinner-time, but always left the house again, as soon as she had eaten the food that was given her. No one knew where she spent the rest of her time, till she was found one day under the wall of the burying-ground, close to the grave of her favourite: and so indelible was the attachment of the cat to her deceased friend, that till the parents removed to another place, five years afterwards, she never, except in the greatest severity of winter, passed the night any where else than at the above-mentioned spot, close to the grave. The cat was, ever afterwards, treated with the utmost kindness by every person in the family. She suffered herself to be played with by the younger children, although without exhibiting a particular partiality for any of them. At the time this story was related, by the parents of the child, the cat had attained her thirteenth year.

In the month of July, 1801, a woman was murdered in Paris. A magistrate, accompanied by a physician, went to the place where the murder had been committed, to examine the body. It was lying upon the floor, and a greyhound, who was standing by the corpse, licked it from time to time, and howled mournfully. When the gentlemen entered the apartment, he ran to them without barking, and then returned, with a melancholy mien, to the body of his murdered mistress. Upon a chest in a corner of the room a cat sat motionless, with eyes expressive of furious indignation, steadfastly fixed upon the body. Many persons now entered the apartment, but neither the appearance of such a crowd of strangers, nor the confusion that prevailed in the place, could make her change her position. In the meantime, some persons were apprehended on suspicion of being the murderers, and it was resolved to lead them into the apartment. Before the cat got sight of them, when she only heard their footsteps approaching, her eyes flashed with increased fury, her hair stood erect, and so soon as she saw them enter the apartment, she sprang towards them with expressions of the most violent rage, but did not venture to attack them, being probably

afraid of the numbers that followed. Having turned several times towards them with a peculiar ferocity of aspect, she crept into a corner, with a mien indicative of the deepest melancholy. This behaviour of the cat astonished every one present. The effect which it produced upon the murderers was such, as almost amounted to an acknowledgment of their guilt. Nor did this remain long doubtful, for a train of accessory circumstances was soon discovered which proved it to a complete conviction.

“A favourite cat,” says Dr Good, in his *Book of Nature*, “that was accustomed from day to day to take her station quietly at my elbow, on the writing table, sometimes for hour after hour, whilst I was engaged in study, became at length less constant in her attendance, as she had a kitten to take care of. One morning she placed herself in the same spot, but seemed unquiet, and, instead of seating herself as usual, continued to rub her furry sides against my hand and pen, as though resolved to draw my attention, and make me leave off. As soon as she had accomplished this point, she leaped down on the carpet, and made towards the door, with a look of great uneasiness. I opened the door for her, as she seemed to desire, but, instead of going forward, she turned round, and looked earnestly at me, as though she wished me to follow her, or had something to communicate. I did not fully understand her meaning, and, being much engaged at the same time, shut the door upon her, that she might go where she liked. In less than an hour afterwards, she had again found an entrance into the room, and drawn close to me, but, instead of mounting the table, and rubbing herself against my hand, as before, she was now under the table, and continued to rub herself against my feet, on moving which I struck them against a something which seemed to be in their way, and, on looking down, beheld, with equal grief and astonishment, the dead body of her little kitten, covered over with cinder dust, and which I supposed had been alive and in good health. I now entered into the entire train of this afflicted cat’s feelings. She had suddenly lost the nursling she doted on, and was resolved to make me acquainted with it,—assuredly that I might know her grief, and probably also that I might inquire into the cause, and, finding me too dull to understand her expressive motioning that I would follow her to the cinder heap on which the dead kitten had been thrown, she took the great labour of

bringing it to me herself, from the area on the basement floor, and up a whole flight of stairs, and laid it at my feet. I took up the kitten in my hand, the cat still following me, made inquiry into the cause of its death, which I found, upon summoning the servants, to have been an accident, in which no one was much to blame; and the yearning mother having thus obtained her object, and gotten her master to enter into her cause, and divide her sorrows with her, gradually took comfort, and resumed her former station by my side."

Instances are common of cats returning, of their own accord, to the place whence they have been carried, though at the distance of several miles, and even across rivers where they could not possibly have had any knowledge of the road. Many years ago, a cat, which was brought up at Bowfield in Renfrewshire, was sent, with its kitten, in a bag to Clippings, in the same county, a distance of five miles. The animal, seeming not to like its new quarters, made its escape, and arrived safely at its old residence, with its kitten in its mouth. Within these few years, a family removed from Glasgow to Edinburgh, bringing with them a favourite cat in a bag, which seemed dissatisfied with its new place of abode. One evening, it left the house, and arrived at Glasgow next morning.

A passion for cats is not uncommon, especially among females, some of whom resemble the feline race, in their domesticity, in the patience with which they watch for their prey, in the treachery of their blandishments, and the ferocity that lurks beneath their meek demeanour. A cat is the proverbial accompaniment of old maids, as it formerly was of witches. Pope in the well-known line,

"Die, and endow a college or a cat,"

alludes to a certain duchess, who bequeathed considerable legacies and annuities to her cats. In the *Mercure Galante* for July, 1678, we read of a famous lawsuit, relative to a cat of Madame de Puis, a celebrated harp player. This lady's will, in favour of her cat, made a great noise at the time; and a suit was carried on to set it aside. Messrs Weaurier, Vautier, and De Ferriere, all famous lawyers, displayed their genius and abilities,—the former in defending, and the two others in pleading against it. The pension which the deceased lady settled

on her cat, and the visits which she ordered should be paid every week, were the circumstances most inveighed against. Similar instances of cat legacies are to be met with in our own time. In the house of a Mrs Griggs, of Southampton Row, who died on the 16th January, 1792, her executors found eighty-six living, and twenty-eight dead cats. This lady, who died worth £30,000, left her black servant £150 per annum, for the maintenance of the eighty-six surviving grimalkins and himself. Nor is the cat mania confined to females. We are told, that Mr Peter King, who died at Islington, in 1806, had two tom cats that used to be set up at table with him at his meals; and it further appears, that as Mr King was a great admirer of fine clothes richly laced, he thought his cats might like them too. The grimalkins were according measured, and wore rich liveries, until they departed for the paradise of brutes, which some authors have maintained is provided for them. In the vicinity of Ulverston there resides an elderly and eccentric bachelor, who keeps no fewer than seventy cats, which he feeds and attends with great regularity. In this harmonious society, instead of a wife and children, his happiness seems to consist; and their delightful caterwauling, which, by others, would be deemed rather unmusical, is, by him, esteemed as a "concord of sweet sounds."

There are few animals which have a stronger attachment for their young than the cat; and she has frequently been known to transfer her affections to other young animals, and to nurture them with much assiduity. She is also capable of attaching herself to animals, that are supposed to be naturally opposed to her, and with whose nurture she had nothing to do. In illustration of these positions, we are enabled to present the reader with a variety of anecdotes.

A cat, which had a numerous litter of kittens, one summer day in spring, encouraged her little ones to frolic in the vernal beams of the noon, about the stable door, where she domiciled. While she was joining them in a thousand tricks and gambols, a large hawk, who was sailing above the barn-yard, in a moment darted upon one of the kittens, and would have as quickly borne it off, but for the courageous mother, who, seeing the danger of her offspring, sprung on the common enemy, who, to defend itself, let fall the prize. The battle presently became severe to both parties. The hawk, by the power of his wings,

the sharpness of his talons, and the strength of his beak, had for a while the advantage, cruelly lacerating the poor cat, and had actually deprived her of one eye in the conflict; but puss, no way daunted at the accident, strove, with all her cunning and agility, for her kittens, till she had broken the wing of her adversary. In this state, she got him more within the power of her claws, and availing herself of this advantage, by an instantaneous exertion, she laid the hawk motionless beneath her feet; and, as if exulting in the victory, tore the head off the vanquished tyrant. This accomplished, disregarding the loss of her eye, she ran to the bleeding kitten, licked the wounds made by the hawk's talons in its tender sides, and purred whilst she caressed her liberated offspring.

A cat, belonging to a person in Taunton, in May, 1822, having lost her kittens, transferred her affections to two ducklings which were kept in the yard adjoining. She led them out every day to feed, seemed quite pleased to see them eat, returned with them to their usual nest, and evinced as much attachment for them, as she could have shown to her lost young ones.

A lady had a tame bird, which she was in the habit of letting out of its cage every day. One morning, as it was picking crumbs of bread off the carpet, her cat, who always before showed great kindness for the bird, seized it on a sudden, and jumped with it in her mouth upon the table. The lady was much alarmed for the safety of her favourite, but, on turning about, instantly discovered the cause. The door had been left open, and a strange cat had just come into the room. After turning it out, her own cat came down from her place of safety, and dropped the bird, without doing it the smallest injury.

A man, one day in September, 1793, saw, in a hay field, in the parish of Storrington, Surrey, a cat and a hare at play together; and he was gratified with the sight for more than ten minutes, when the timid animal, on being alarmed at his nearer approach, ran into a thicket of fern, and was followed by the cat.

In the summer of 1792, a gentleman who lived in the neighbourhood of Portsmouth, had a cat, which kitted four or five days after a hen had brought out a brood of chickens. As he did not wish to keep more than one cat at a time, the kittens were all drowned, and the same day the cat and one chicken went amissing. Diligent search was immediately

made in every place that could be thought of, both in and out of the house, to no purpose ; it was then concluded that some mischance had befallen both. Four days afterwards, however, the servant having occasion to go into an unfrequented part of the cellar, discovered, to his great astonishment, the cat lying in one corner, with the chicken hugged close to her body, and one paw laid over it, as if to preserve it from injury. The cat and adopted chicken were brought into a closet in the kitchen, where they continued some days, the cat treating the chicken in every respect as a kitten. Whenever the chicken left the cat to eat, she appeared very uneasy, but, on its return, she received it with the affection of a mother, pressed it to her body, purred, and seemed perfectly happy. If the chicken was carried to the hen, it immediately returned to the cat. The chicken was by some accident killed, and the cat would not eat for several days afterwards, being inconsolable for its loss.

A similar attachment is mentioned as having taken place at a farm near Leipsic. A cat was observed to have a particular regard for a chicken. She almost constantly attended, and protected it from every danger. But what is still more remarkable, this attachment, on the part of the cat, continued after the chicken grew up. When the poultry were called to receive their food, grimalkin was sure to make her appearance, and would not allow any of the other hens to peck, till her favourite had first eaten her fill ; after which she let them satisfy themselves.

Two lads in the north of England, being out a squirrel hunting, found a nest, in which were two young ones. Though quite helpless, and though little hope could be entertained of their surviving their dam, yet the lads took the poor little animals home. One of these, which was yet blind, was an object of great solicitude to its youthful possessor, from its helpless state, and his want of knowledge how to rear it. However, he was at length released from his care by the extraordinary attachment of the family cat to the young squirrel, which she carried in her mouth, (according to custom,) placed it near a kitten which she then had, and cherished it as her own. In a few days, its eyelids opened, and it throve well for the space of eight months. It became remarkably sportive, performing many curious tricks. This pet, however, died, to the unspeakable chagrin of its foster-mother,

puss, who had always been in the habit of treating it with the utmost tenderness, and to the no small grief of its doting possessor.

A short time ago, a young girl, daughter of Mr John Anderson, farmer at Collin, on the road to Annan, brought home early one morning two fine larks, which she had taken from the nest in a neighbouring field. Soon after, the girl discovered, that one of the birds had been taken out of the cage, and, on searching for it, found that the cat, whose only kitten died a day or two before, had carried the bird to the place where she usually nurtured her offspring, and was trying every method to make it suckle her; and, when the lark attempted to get away, she still detained it, evincing the utmost anxiety for its safety. The girl, however, caught the bird, and placed it in the cage, which she hung in a situation beyond the reach of the cat. A few days after, several more birds were brought to the house, one of which the persevering cat also stole, and again tried, by all the endearing arts in her power, to make this one likewise accept of her nourishment. Neither of the birds suffered the least injury from the animal.

A cat, belonging to Mr Michel, dentist, having kitted at the same time that his bitch had whelped, absolutely forsook her own offspring, and suckled and reared one of the pups.

M. Hecart, of Valenciennes, procured the kitten of a wild cat, which he so effectually tamed, that she became the friend and protector of a domesticated sparrow. M. Hecart always allowed the sparrow to fly about at perfect liberty. One day, a cat, belonging to a neighbouring house, had seized upon this sparrow, and was making off with it; but, this wild cat, observing her at the very moment, flew at puss, and made her quit the bird, which she brought bleeding, and half dead, to her master. She seemed, from her manner, really to sympathize very sincerely with the situation of the poor sparrow, and rejoiced when it recovered from the injury, and was again able to amuse itself with this wild grimalkin.

A cat, belonging to Mr Large, of Fairnlaw House, Tunbridge Wells, brought forth five kittens, four of which were doomed to destruction, by drowning in a pail of water. After being immersed for three quarters of an hour, a hole of considerable depth

was dug in a dung heap, into which they were thrown, the hole filled up, and they were no more thought of. A considerable time after, Mr Large, getting into a hay-loft, was struck with astonishment at seeing the cat with her five kittens, all alive and well. Two extraordinary circumstances were connected with the event,—the reanimation of the animals after being under water so long, and their being extricated from their sepulchre. The first was supposed to be occasioned by the heat of the dung, and the second from the instinctive sagacity, and persevering industry of the affectionate parent.

A cat, belonging to Mr Stevens, of the Red Lion Hotel in Truro, during the period of her gestation, was conveyed to a barn, near the turnpike gate, on the Mitchell road. She produced four kittens. Not wishing the stock increased, Mr Stevens desired three of them to be drowned, next morning, before opening their eyes on the world. Puss was deeply affected by this bereavement, and resolved on removing her remaining offspring to a place of security. When the person appointed to feed grimalkin went with her breakfast next day, no traces of her or her kitten were to be found. He called; but all was silent as the tomb; every corner was searched in vain; no cat was forthcoming. Here the matter rested for several days, when, at length, early one morning, puss made her appearance in the court of her master's house, a melancholy picture of starvation. Having satisfied her hunger, and loitered about the house during the day, late in the evening she took her departure, carrying away some meat. For several days she continued her visits in the same manner, taking care never to leave home empty-mouthed at night. Her proceedings having excited attention, she was followed by two men, in one of her nocturnal retreats, and traced to the top of a wheat stack, at some distance. On obtaining a ladder, her surviving kitten was found, in a curiously constructed hole, sleek and plump, but as wild as a young tiger, and would allow no one to touch it. A few days afterwards, the mother finding, perhaps, that her own daily journeys were rather fatiguing, or thinking it was time that the object of her solicitude should be introduced into the world, or, probably, that the kitten had attained an age when it could protect itself, she took advantage of a dark and silent night, when cat-worrying dogs and boys were reposing, to convey it

safely to Truro, where, we need not say, tabby and her kitten found a welcome reception.

"I had," says M. Weuzel, the author of *Observations on the Language of Brutes*, "a cat and a dog, which became so attached to each other, that they would never willingly be asunder. Whenever the dog got any choice morsel of food, he was sure to divide it with his whiskered friend. They always ate sociably out of one plate, slept in the same bed, and daily walked out together. . . Wishing to put this apparently sincere friendship to the proof, I, one day, took the cat by herself into my room, while I had the dog guarded in another apartment. I entertained the cat in a most sumptuous manner, being desirous to see what sort of meal she would make without her friend, who had hitherto been her constant table companion. The cat enjoyed the treat with great glee, and seemed to have entirely forgotten the dog. I had had a partridge for dinner, half of which I intended to keep for supper. My wife covered it with a plate, and put it into a cupboard, the door of which she did not lock. The cat left the room, and I walked out upon business. My wife, meanwhile, sat at work in an adjoining apartment. When I returned home, she related to me the following circumstances : —The cat, having hastily left the dining-room, went to the dog, and mewed uncommonly loud, and in different tones of voice ; which the dog, from time to time, answered with a short bark. They then went both to the door of the room where the cat had dined, and waited till it was opened. One of my children opened the door, and immediately the two friends entered the apartment. The mewing of the cat excited my wife's attention. She rose from her seat, and stepped softly up to the door, which stood ajar, to observe what was going on. The cat led the dog to the cupboard which contained the partridge, pushed off the plate which covered it, and, taking out my intended supper, laid it before her canine friend, who devoured it greedily. Probably the cat, by her mewing, had given the dog to understand what an excellent meal she had made, and how sorry she was that he had not participated in it ; but, at the same time, had given him to understand that something was left for him in the cupboard, and persuaded him to follow her thither. Since that time I have paid particular attention to these animals, and am perfectly convinced that they communicate to each other whatever seems in-

teresting to either." It may be added, that we have often seen the cat and dog of a family on a friendly footing, and in these cases it was always the cat that showed most affection, the dog's friendship being only a matter of tolerance or necessity.

In June, 1825, a farmer, residing in the neighbourhood of Ross, sent a load of grain to Gloucester, a distance of about sixteen miles. The waggoners loaded in the evening, and started early in the morning. On its being unloaded at Gloucester, a favourite cat, belonging to the farmer, was found among the sacks, with two kittens of very recent birth. The waggoner very humanely placed puss and her young in a hay-loft, where he expected they would remain in safety, until he should be ready to depart for home. On his return to the loft shortly afterwards, neither cat nor kittens were to be found, and he reluctantly left town without them. Next morning she entered the kitchen of her master's house with one kitten in her mouth. It was dead; but she placed it before the fire, and without seeking food, or indulging, for a moment, in the genial warmth of her domestic hearth, she disappeared. In about an hour she returned with the other kitten, laid it down by the hearth, stretched herself beside them, and instantly expired! The poor creature could have carried but one at a time, and, consequently, must have travelled three times over the whole line of her journey, and performed forty-eight miles in less than twelve hours.

Mr White mentions, in his *Natural History of Selborne*, that he had a friend who got a helpless leveret brought to him, which the servants fed with milk in a spoon; and, about the same time, his cat kitted, and the young were despatched and buried. The hare was soon lost, and supposed to be gone the way of most foundlings, to be killed by some cat or dog. However, in about a fortnight, as the master was sitting in his garden, in the dusk of evening, he observed his cat, with tail erect, trotting towards him, and calling with little, short, inwards notes of complacency, such as they use towards their kittens, and something gamboling after, which proved to be the leveret, that the cat had supported with her milk, and continued to support with great affection. Thus was a granivorous animal nurtured by a carnivorous and predaceous one! This strange affection was,

probably, occasioned by those tender maternal feelings which the loss of her kittens had awakened, and by the complacency and ease she derived from the procuring of her teats to be drawn, which were too much distended with milk. From habit, she became as much delighted with this foundling, as if it had been her real offspring.

Some time ago, a sympathy of this nature took place in the house of Mr James Greenfield, of Mary-land, betwixt a cat and a young rat. Puss had kittens, to which she frequently carried mice, and other small animals, for food; and amongst them is supposed to have been carried a young rat alive. The kittens, probably, not being hungry at the time, played with it; and, when grimalkin gave suck to the kittens, the rat also participated. This having been observed by the servants of Mr Greenfield, he was informed of the strange circumstance. He had the kittens and rat conveyed down stairs, and laid on the floor; they were followed by the cat, who licked them all over, the young rat included. She was allowed to carry them off to their bed, when it was remarked that she mouthed the rat with as much tenderness as her own offspring. This experiment was as often repeated as he had company, till great numbers had become eye-witnesses to this preternatural affection.

These numerous anecdotes display the strong affections, especially of the maternal kind, with which the cat is imbued. We have still some historical notices and anecdotes of a miscellaneous description, to record regarding puss, and which we here lay before the reader.

Cecco maintained, that nature was more potent than art, while Dante asserted the contrary. To prove his principle, the great Italian bard referred to his cat, which by repeated practice, he had taught to hold a candle in its paw, while he supped or read. Cecco desired to witness the experiment, and came not unprepared for his purpose. When Dante's cat was performing its part, Cecco, lifting up the lid of a pot, which he had filled with mice, the creature of art instantly showed the weakness of a talent merely acquired; and, dropping the candle, sprung on the mice, with all its instinctive propensity. Dante was himself disconcerted; and it was adjudged, that the advocate for the occult principle of natural faculties had gained his cause.

In the *Bibliothèque Universelle*, for 1821, it is mentioned,

that a prolific cross breed had been produced between the domestic cat and pine martin, the fur of which promises to be a valuable article of commerce. A specimen of this cross breed was presented in that year, to the Imperial Society of Natural History of Moscow; it was sent from the government of Penza, where the pine martin is very abundant. The following history is given of this cross breed:—A domestic cat disappeared from a house in Penza. After being absent some time, she returned; and within the regular time, produced four young ones, two of which strongly resembled the martin. Their claws were not retractile, as in the cat, and the snout was elongated, like that of the pine martin. The two others of the same litter more nearly resembled the cat, as they had retractile claws and round heads. All of them had the black feet, tail, and ears of the martin; and they killed birds and small animals, more for the pleasure of destroying them, than for food. The proprietor endeavoured to multiply this bastard race, and to prevent their intermixing with the other domestic cats, in which he proved highly successful. In the space of a few years, he reared more than a hundred of these animals, and made a very beautiful article of furriery of their skins. The specimen presented to the society, was of the third or fourth generation; and it retained all the characters of the first. The fur is as beautiful and silky as that of the pine martin.

“There is a propensity belonging to common house cats,” says Mr White, “that is very remarkable; I mean their violent fondness for fish, which appears to be their most favourite food; and yet nature, in this instance, seems to have planted in them an appetite that, unassisted, they know not how to gratify; for, of all quadrupeds, cats are the least disposed towards water, and will not, when they can avoid it, deign to wet a foot, much less to plunge into that element.” Still there are many instances in which their relish for fish overcomes their repugnance to water. The Rev. W. Bingley mentions one of a cat freely taking the water, related by his friend, Mr Bill, of Christ Church. When he lived at Wallington, near Carshalton, in Surrey, he had a cat that was often known to plunge, without hesitation, into the river Wandle, and swim over to an island, at a little distance from the Bank. To this there could be no other inducement, than the fish she might catch on her passage, or the vermin that

the island afforded. This is a curious instance; but the following, which may be depended upon as a fact, is still more remarkable:—At Caverton Mill, in Roxburghshire, a beautiful spot upon the Kale water, there was a favourite cat, domesticated in the dwelling-house, which stood at two or three hundred yards from the mill. When the mill work ceased, the water was, as usual, stopped at the dam-head; and the dam below, consequently, ran gradually more shallow, often leaving trout, which had ascended when it was full, to struggle back with difficulty to the parent stream; and so well acquainted had puss become with this circumstance, and so fond was she of fish, that the moment she heard the noise of the mill-clapper cease, she used to scamper off to the dam, and, up to her belly in the water, continued to catch fish, like an otter. It would not be easy to cite a more curious case of animal instinct approaching to reason, and overcoming the usual habits of the species.

Mr Moody, of Jesmond, near Newcastle-on-Tyne, had a cat, in 1827, which was in his possession for some years, that caught fish with great assiduity, and frequently brought them home alive! Besides minnows and eels, she occasionally carried home pilchards, one of which, about six inches long, was found in her possession, in August, 1827. She also contrived to teach a neighbour's cat to fish; and the two have been seen together watching by the Uis for their prey. At other times they have been seen at opposite sides of the river, not far from each other.

A still more extraordinary circumstance of a cat's propensity for fishing is recorded in the *Plymouth Journal*, June, 1828:—"There is now at the battery on the Devil's Point, a cat, which is an expert catcher of the finny tribe, being in the constant habit of diving into the sea, and bringing up the fish alive in her mouth, and depositing them in the guard-room, for the use of the soldiers. She is now seven years old, and has long been a useful caterer. It is supposed that her pursuit of the water-rats first taught her to venture into the water, to which it is well known puss has a natural aversion. She is as fond of the water as a Newfoundland dog, and takes her regular peregrinations along the rocks at its edge, looking out for her prey, ready to dive for them at a moment's notice."

A cat, belonging to an elderly lady in Bath, was so attached to her mistress, that she would pass the night in her bed-

chamber, which was four stories high. Outside of the window was the parapet wall, on which the lady often strewed crumbs for the sparrows that came to partake of them. The lady always sleeping with her window open, the cat would pounce upon the birds, and kill them. One morning, giving a "longing, lingering look" at the top of the wall, and seeing it free from crumbs, she was at a loss for an expedient to decoy the feathered tribe, when, reconnoitring, she discovered a small bunch of wheat suspended in the room, which she sprang at, and succeeded in getting down. She then carried it to the favourite resort of the sparrows, and actually thrashed the corn out, by beating it on the wall, then hiding herself. After a while, the birds came, and she resumed her favourite sport of killing the dupes of her sagacity.

A curious fact respecting cats has lately been discovered, and is first mentioned in the *Magazine of Natural History*.* A correspondent briefly states,—“White cats with blue eyes are always deaf.” Another contributor to the same work says, that, in confirmation of what is above stated, he forwards the following extraordinary fact, which came within his own observation :—“Some years ago, a white cat, of the Persian kind, (probably not a thorough bred one,) procured from Lord Dudley's at Hindly, was kept in my family as a favourite. The animal was a female, quite white, and perfectly deaf. She produced, at various times, many litters of kittens, of which, generally, some were quite white, others more or less mottled, tabby, &c. But the extraordinary circumstance is, that of the offspring produced at one and the same birth, such as were, like the mother, entirely white, were, like her, invariably deaf, while those that had the least speck of colour on their fur, as invariably possessed the usual faculty of hearing.”†

In November, 1822, a cat, the property of Mr Dewsbury, tanner, of Bodnant, brought forth three kittens, which vied with each other in the singularity of their appearance. One of them had two heads, and apparently three eyes, the one eye in the centre being common to both; the second kitten had six legs, two of which were useless, having no joints: it was also

* Vol. i. p. 66. Signed E. W. S. Chelsea, March 20, 1828.

† W. F. Bree, Allesbury Rectory, near Coventry, 23d May, 1828.

furnished with a double spine, which gave the back a very broad appearance ; the third was formed like cats in general, but was of a deep liver colour, a thing never before remembered. A great many respectable people paid their respects to the " lady in the straw."

The following extraordinary anecdote of the sensibility of cats to approaching danger from earthquakes, is well authenticated:—In the year 1783, two cats, belonging to a merchant of Messina, in Sicily, announced to him the approach of an earthquake. Before the first shock was felt, these two animals seemed anxiously to work their way through the door of a room in which they were. Their master, observing their fruitless efforts, opened the door for them. At a second and third door, which they likewise found shut, they repeated their efforts, and, on being set completely at liberty, they ran straight through the street, and out of the gate of the town. The merchant, whose curiosity was excited by this strange conduct of the cats, followed them into the fields, where he again saw them scratching and burrowing in the earth. Soon after, there was a violent shock of an earthquake, and many of the houses of the city fell down, of which number the merchant's was one ; so that he was indebted for his life to the singular foresight of his cats, which doubtless arose from the perfection of their animal sensibilities, making them conscious of the internal commotions of the earth before these were discernible by man.

The following instance of what may be termed pride or conceit in a cat, came under the observation of a gentleman, in the neighbourhood of Sheffield, in July, 1827:—" This fair grimalkin carried her notions of beauty so far, and her admiration of her own person was so great, that she would not condescend to nourish and protect her own offspring, if they happened to be tinted with colours different from what adorned her own figure, which was what is usually denominated tortoise-shell. She happened on one occasion only, to produce one kitten, of a jet black. The cruel mother drew the unfortunate little creature out of the bed in which it lay, and refusing to give it suck, it perished on the cold ground. Some time after, she gave birth to three more, one of which had the misfortune not to be clad in the same colours as the mother. It was

therefore ousted by the unnatural parent ; and, although again and again replaced in its bed, it was as frequently turned out again. The owner of the cat, finding it useless to persist in what puss had determined should not be, in humanity consigned the kitten to a watery grave,—the victim of a parent's pride and cruelty."

A family were accustomed to feed their cat in the dining-room every day, while they were at dinner. Puss was so well acquainted with the sound of the bell, which announced that the meal was on the table, that she never failed to repair thither regularly with the family. By accident, one day, she was shut up in a room by herself, where she remained undiscovered till dinner was over. Some hours afterwards, however, she was emancipated from her confinement, when she hastened to the room, but found nothing reserved for her. Hungry and disappointed, she ran to the bell, and began tumbling it about, with the intention of ringing it ; but it proved too unwieldy for her.

De la Croix relates the following almost incredible instance of sagacity in a cat, who even, under the receiver of an air-pump, discovered the means of escaping a death, which appeared, to all present, inevitable: "I once saw," says he, "a lecturer upon experimental philosophy place a cat under the glass receiver of an air-pump, for the purpose of demonstrating that very certain fact, that life cannot be supported without air and respiration. The lecturer had already made several strokes with the piston, in order to exhaust the receiver of its air, when the animal, who began to feel herself very uncomfortable in the rarefied atmosphere, was fortunate enough to discover the source from which her uneasiness proceeded. She placed her paw upon the hole through which the air escaped, and thus prevented any more from passing out of the receiver. All the exertions of the philosopher were now unavailing ; in vain he drew the piston : the cat's paw effectually prevented its operation. Hoping to effect his purpose, he let air again into the receiver, which, as soon as the cat perceived, she withdrew her paw from the aperture ; but whenever he attempted to exhaust the receiver, she applied her paw as before. All the spectators clapped their hands in admiration of the wonderful sagacity of the animal, and the lecturer found himself under the necessity of liberating her, and substituting in her place another, that

possessed less penetration, and enabled him to exhibit the cruel experiment."

Cats, as well as dogs, are liable to madness. On Sunday, the 16th Februray, 1825, just before church time, as a person of the name of Wilson was fresh marking his baskets in Covent Garden market, London, he saw a large cat rush suddenly by, when the animal turned short round, and fastened on a man named Hutchen. The enraged animal fixed upon the man's thigh, biting him quite through the trousers, whence it was with great difficulty got off. The unfortunate man who was bit, seized the cat with both his hands, while the bystanders, with some difficulty, killed it. Mr Cole, a surgeon in Russel Street, was applied to upon the occasion, and found it necessary to have the bitten part cut out. Nothing of madness was ever before perceived in the animal. In May, 1830, a young man, of Camberwell, was brought to St Thomas' Hospital, London, labouring in the last stage of hydrophobia. He had been bitten in the hand by a cat, about five months before that time.

On the 11th April, 1831, an exhibition of cats (six in number) was opened in Edinburgh by a company of Italians. These animals gave astonishing proofs of their intelligence. They were kept in a large sparred box, and individually came forth, at the command of the exhibitor, and seemed perfectly to understand their duty. These well tutored creatures beat a drum, turned a spit, struck upon an anvil, turned a coffee roaster, and rung bells. Two of them, who seemed to be more sagacious than the rest, drew a bucket, suspended, by a pulley, in the manner water is raised from a draw-well. The length of the rope was about six feet; and they perfectly understood when the bucket was high enough, when they stopt pulling. In the greater part of their performances, they stood on their hind legs. We remarked an instance of great cunning in one of the animals, which was not at the time employed, but was in its box, and seemed to know, that its companion, who was employed in drawing the water, would be rewarded the second time with a small bit of meat, which was put into the bucket. It came slyly out, and, when the bucket was on a level with the place where it was sitting, caught hold of it with its claws, and purloined the beef. There was also in the exhibition, a tame white rat, which the exhibitor brought out of a box, and desired one of the cats to kiss

it, when it immediately licked the cat all over. He afterwards put it on the cat's head, and it walked over her body, without seeming to give her any unpleasant sensation. One of the cats would turn a wheel, only when a piece of meat, stuck on a spit, was put before it; but the instant it was removed, she stopt, and however loudly the exhibitor called to it, and even threatened to whip it, no attention was paid to his orders, till the meat was replaced.

We shall conclude these anecdotes of the cat by one of an affecting nature, which lately came under our own experience. Our family happened to have a young cat of a very timid disposition. Whenever a stranger entered the house, she hid herself in some dark corner, and would not make her appearance until his departure, however long the visit might be. To the female part of the family, she was ever trusting and affectionate, but she had an intuitive dread of the male. In particular, the writer of this was no favourite: she always evinced the utmost alarm at his approach, and could by no inducement be led to come near him. We tried every conceivable method to place puss on a good understanding with us, but to no purpose. She still continued to run from us, till at last, provoked by her skulking timidity, for which she had no apparent cause,—for our deportment towards her had been throughout of the most soothing character,—we were tempted, one day, to give her a whipping. Nothing could be more slight than the chastisement we bestowed; but it increased her terror for us tenfold. She now flew from every apartment which we happened to enter, and betrayed such unworthy fear of us, that we at length gave up all hopes of gaining her friendship, or even of establishing a decent acquaintanceship with her. While matters stood thus, our family removed from Glasgow to Edinburgh, leaving puss and ourselves in the first-mentioned city. It was afterwards matter of deep regret and self-reproach, that they did not take the cat with them; but fearing the trouble she would occasion during so long a journey, they gave her in charge to a neighbour, upon whose kind treatment they had some reliance. About a fortnight after their removal, we called on this neighbour, with the view of seeing how our old enemy was getting on. The goodwife of the house had a world of lamentations to make. She could make nothing of the cat, she said;—it would take no meat nor

drink, but kept constantly crouching under the bed, and sending forth pitiful cries. It was reduced to skin and bone; she had done every thing she could think of to reconcile it to its change of situation, but to no purpose. While thus speaking, poor puss herself came crawling from underneath the bed—the shadow of what she was—and leapt upon our knee! The unhappy creature had heard our voice; and although it had formerly been only a source of terror to her, she now recognised it as connected with all she loved, and, in her extremity, she claimed our protection on the faith of old acquaintanceship. We were much affected by this incident, and would certainly have forwarded poor puss to her friends in Edinburgh; but as she refused all nourishment, she died before that could be accomplished. Her death was lamented with a grief embittered by self-accusation at leaving her behind.

THE LION.

THE Lion stands at the head of the cat tribe, and has long been considered the undisputed monarch of the brute creation. From the earliest times, he has been held in reverent regard for his power, courage, and generosity. When we speak of a lion, we call up to our imaginations the splendid picture of might unmingled with ferocity, of courage undebased by guile, of dignity tempered with grace and ennobled by generosity; in short, of that combination of brilliant qualities, the imputation of which, by universal consent, has placed him above other beasts, and invested him with regal attributes.

Buffon, and, after him, Goldsmith, have given way to the popular prejudices in favour of the lion, representing him in exaggerated and delusive colours, not as he is delineated in the authentic accounts of those naturalists and travellers who have had the best means of observing his habits. Perhaps the most effectual way of guarding against the general prejudice, which has delighted in exalting him at the expense of his fellow-beasts, will be found in the recollection that, both physically and morally, he is neither more nor less than a cat, of immense size and corresponding power it is true, but not on that account the less endowed with all the guileful and vindictive passions of that

tribe. He is distinguished from other cats by the uniformity of his colour, which is pale tawney above, becoming somewhat lighter beneath, and never, except in his young state, exhibiting the least appearance of spots or stripes; by the long and flowing mane of the adult male, which originating nearly as far forward as the root of the nose, extends backwards over his shoulders, and descends in graceful undulations on each side of his neck and face; and by the tuft of long and blackish hairs which terminates his powerful tail.* These constitute what is termed his specific character, or that which is peculiar to the species or race; connecting the individuals together by marks common to them all, and at the same time separating them from the other animals of the same group or genus.

In his moral and intellectual faculties, as well as in his external and physical character, the lion exhibits a close agreement with the strikingly distinct and well-marked group to which he belongs. His courage is proverbial; but this cannot be attributed to any innate elevation of sentiment, and must rather be ascribed to the consciousness of his own physical powers, finding that there is no other animal of the forest who singly can overcome him. Attached by nature to the arid regions of Africa and Asia, he ranges uncontrolled, making the timid and defenceless antelope, the ferocious hyæna, and the

* Homer, and many other ancient poets, both Greek and Latin, when they describe an enraged lion, relate that he stimulates himself with blows of his tail; and Pliny, indeed, calls the tail the index of the lion's mind: for, says he, "when the tail is at rest, the animal is quiet, gentle, and seems pleased, which is seldom, however, the case; and anger is much more frequent with him, in the commencement of which he lashes the ground, but, as it increases, his sides, as if with the view of rousing it to a higher pitch." Again, Alexander Aphrodisiensis has, among his *Problemata*, the following:—"Why, since the moving of the tail is, in most animals, a sign of their recognition of friends, does the lion lash his sides, when enraged, and the bull in the same manner?" But the ancient commentator of Homer, who commonly goes by the name of Didymus Alexandrinus, asserts, with reference to the place in the *Iliad*, Book XX, where it is mentioned, "that the lion has a black prickle on its tail among the hair, like a horn, when punctured with which, it is still more irritated by the pain." This opinion, however, was regarded by modern anatomists as a mere fiction, until Professor Blumenbach determined the truth of it. A lioness, which was presented to him, having died, he searched for the spine, and detected it in the skin, where he found a singular follicle of a glandular appearance, to which the prickle firmly adhered.

cunning baboon an easy prey. His pliable agility, and sinewy frame, together with the resistless and impetuous fury of his attacks, enable him to overcome even the massive bulk of the elephant, rhinoceros, and buffalo. Roving in the boundless desert, the extensive plains, or in the shade of the vast jungles of his native country, he holds despotic sway, and well deserves the title of "the king of beasts." But, look at him in the neighbourhood of large towns, and populous districts, and it will be seen that his fortitude and conscious superiority are greatly modified; for, in these situations, he yields to the power of man, skulking only in the deepest recesses of extensive jungles, or in the impenetrable depths of mighty forests, seeking to overcome his unwary prey, by lying in ambush, and seizing them when they little expect his attacks. To the consciousness of a want of capacity to overcome the lords of creation, must, in a great measure, be attributed his docility under captivity; and to his native dignity of aspect he is indebted for the general impression mankind have formed of his noble character, and amiable disposition.

The lion is destined by nature to subsist on animal food alone, and has been invested with physical energies, constructed on principles which give him, in an astonishing degree, the power of destroying animal life. His head is particularly large, his jaws have immense strength, and his shoulders and chest have a depth far exceeding all other animals of his size.

"It is singular," says Sparrman, "that the lion, which, according to many, always kills his prey immediately if it belongs to the brute creation, is reported, frequently, although provoked, to content himself with merely wounding the human species; or, at least, to wait some time before he gives the fatal blow to the unhappy victim he has got under him. A farmer, who the year before had the misfortune to be a spectator of a lion's seizing two of his oxen, at the very instant he had taken them out of the waggon, told me, that they immediately fell down dead upon the spot, close to each other; though, upon examining the carcasses afterwards, it appeared that their backs only had been broken. In several places through which I passed, they mentioned to me by name a father and his two sons, who were said to be still living, and who, being on foot near a river on their estate, in search of a lion, this latter had rushed out upon them, and

thrown one of them under his feet. The two others, however, had time enough to shoot the lion dead upon the spot, which had lain almost across the youth, so nearly and dearly related to them, without having done him any particular hurt. I myself saw, near the upper part of Duyvenhoek-rivier, an elderly Hottentot who, at that time, (his wounds being still open,) bore under one eye, and underneath his cheek bone, the ghastly marks of the bite of a lion, which did not think it worth his while to give him any other chastisement for having, together with his master, (whom I also knew,) and several other Christians, hunted him with great intrepidity, though without success. The conversation ran every where in this part of the country upon one Bota, a farmer, and captain in the militia, who had lain for some time under a lion, and had received several bruises from the beast, having been at the same time a good deal bitten by him in one arm, as a token to remember him by; but, upon the whole, had, in a manner, had his life given him by this noble animal. The man was said then to be living in the district of Artaquas-kloof."

The lion, when in captivity, is fed but once a-day, and is generally allowed from eight to nine pounds of beef to a meal, exclusive of bones. When his food is given to him, he generally seizes it with avidity, instantly tears it to pieces with his claws, and voraciously devours it, contrary to the practice of those in a state of nature.

The lion generally sets out on his predatory excursions during the night; and his eyes are so formed, that nature seems to have designed him for a nocturnal animal, being constructed similar to those of the cat, so that the full glare of a vertical sun must be not only troublesome, but even painful to him. It is a knowledge of this that prompts travellers during the night to light fires, and keep them blazing; their effect on the animal's eyes deters him from approaching, which he seldom will do, except when very hard pressed by hunger. But, if excited by the cravings of his appetite, he will break through every obstacle, and assume a boldness not his natural characteristic.

Africa is the native country of the lion, in the vast and untrodden wilds of which he reigns supreme and uncontrolled. In the sandy deserts of Arabia, in some of the wilder districts of Persia, and in the vast jungles of Hindostan, he still maintains

a precarious footing ; but from the classic soil of Greece, as well as from the whole of Asia Minor, both of which were once exposed to his ravages, he has been utterly dislodged and extirpated. There are some variations in the different races of lions from these distant localities. The Asiatic lion seldom attains a size equal to that of the Southern African ; its colour is a more uniform and paler yellow throughout, and its mane is, in general, fuller and more complete. Their habits, however, are in essential particulars the same. Of the African lion, there are two varieties, known to the settlers under the names of the Pale and the Black Lion, and distinguished, as their names imply, by the lighter or darker colour of their coats, and more particularly of their manes. The Black lion, as he is termed, is the larger and more ferocious of the two, often attacking man himself, if less noble prey should fail him. He is, however, of less frequent occurrence than the pale variety.

In no part of Africa does the lion attain greater size, or exhibit all his characteristic features in more complete development, than in the immediate vicinity of the settlements which have been formed in the interior of its southern extremity by the Dutch and English colonists of the Cape. There, he is often brought into contact with man, and encounters take place, which acquire a terrible interest from their danger. Very interesting descriptions of these have been given by Mr Burchell in his ' Travels in Africa,' and by our distinguished countryman Mr Pringle, in the Notes to his ' Ephemerides.' The reader will find these accounts extracted in the Notes to our edition of Goldsmith. We have still some equally curious accounts of similar rencounters to lay before him.

The Landdrost Joseph Sterreberg Kupt, who proceeded on a journey into the country, to purchase some young oxen for the Dutch East India Company, wrote an amusing journal, which contains the following distressing adventure of his company with a lion :—" Our waggons, which were obliged to take a circuitous route, arrived at last, and we pitched our tent a musket-shot from the kraal, and, after having arranged every thing, went to rest, but were soon disturbed ; for, about midnight the cattle and horses, which were standing between the waggons, began to start and run, and one of the drivers to

shout, on which every one ran out of the tent with his gun. About thirty paces from the tent stood a lion, which, on seeing us, walked very deliberately about thirty paces farther, behind a small thorn bush, carrying something with him, which I took to be a young ox. We fired more than sixty shots at that bush, and pierced it stoutly, without perceiving any movement. The south-east wind blew strong, the sky was clear, and the moon shone very bright, so that we could perceive every thing at that distance. After the cattle had been quieted again, and I had looked over every thing, I missed the sentry from before the tent, Jan Smit, from Antwerp, belonging to the Groene Kloof. We called as loudly as possible, but in vain,—nobody answered; from which I concluded that the lion had carried him off. Three or four men then advanced very cautiously to the bush, which stood right opposite the door of the tent, to see if they could discover any thing of the man, but returned helter-skelter; for the lion, which was there still, rose up, and began to roar. They found there the musket of the sentry, which was cocked, and also his cap and shoes. We fired again about a hundred shots at the bush, (which was sixty paces from the tent, and only thirty paces from the waggons, and at which we were able to point as at a target,) without perceiving any thing of the lion, from which we concluded that he was killed, or had run away. This induced the marksman, Jan Stamansz, to go and see if he was there still or not, taking with him a firebrand. But, as soon as he approached the bush, the lion roared terribly, and leapt at him; on which he threw the firebrand at him, and the other people having fired about ten shots, he retired directly to his former place behind that bush. The firebrand which he had thrown at the lion had fallen in the midst of the bush, and, favoured by the strong south-east wind, it began to burn with a great flame, so that we could see very clearly into and through it. We continued our firing into it; the night passed away, and the day began to break, which animated every one to aim at the lion, because he could not go from thence without exposing himself entirely, as the bush stood directly against a steep kloof. Seven men, posted on the farthest waggon, watched him, to take aim at him if he should come out. At last, before it became quite light, he walked up the hill, with the man in his mouth, when about forty shots were fired with-

out hitting him, although some were very near. Every time this happened, he turned round towards the tent, and came roaring towards us ; and, I am of opinion, that if he had been hit, he would have rushed on the people and the tent. When it became broad daylight, we perceived, by the blood, and a piece of the clothes of the man, that the lion had taken him away, and carried him with him. We also found, behind the bush, the place where the lion had been keeping the man, and it appeared impossible that no ball should have hit him, as we found, in that place, several balls beaten flat. We concluded that he was wounded, and not far from this. The people, therefore, requested permission to go in search of the man's corpse, in order to bury it, supposing that, by our continual firing, the lion would not have had time to devour much of it. I gave permission to some, on condition that they should take a good party of armed Hottentots with them, and made them promise that they would not run into danger, but keep a good look-out, and be circumspect. On this, seven of them, assisted by forty-three armed Hottentots, followed the track, and found the lion about half a league farther on, lying behind a little bush. On the shout of the Hottentots, he sprang up and ran away, on which they all pursued him. At last the beast turned round, and rushed, roaring terribly, amongst the crowd. The people, fatigued, and out of breath with running, fired and missed him, on which he made directly towards them. The captain, or chief of the kraal, here did a brave act in aid of two of the people whom the lion attacked : the gun of one of them burnt priming, and the other missed his aim, on which the captain threw himself between the lion and the people so close, that the lion struck his claws into the caross (mantle) of the Hottentot. But he was too agile for him, doffed his caross, and stabbed him with an assagai.* Instantly the other Hottentots hastened on, and adorned him with their assagais, so that he looked like a porcupine. Notwithstanding this, he did not leave off roaring and leaping, and bit off some of the assagais, till the marksman, Jan Stamansz, fired a ball into his

* The generous bravery of this man towards strangers offers a striking refutation of the calumnies against the Hottentot race, which the Dutch colonists employed to defend their cruel and treacherous persecutions.

eye, which made him turn over, and he was then shot dead by the other people. He was a tremendously large beast, and had, but a short time before, carried off a Hottentot from the kraal, and devoured him."

The lion has great dulness in his sense of hearing; he is awoke with difficulty; and when awake, appears confused, exhibiting a want of presence of mind. The bluntness of this sense is favourable to his pursuers, and is thus well described by Dr Philip:—"The wolf and the tiger generally retire to the caverns and the ravines of the mountains; but the lion is most usually found in the open plain, and in the neighbourhood of the flocks of antelopes, that invariably seek the open country, and who manifest a kind of instinctive aversion to places in which their powerful adversary may spring upon them suddenly and unexpectedly. It has been remarked of the lion, by the Bushmen, that he generally kills and devours his prey in the morning at sunrise, or at sunset. On this account, when they intend to kill lions, they generally notice where the springboks are grazing at the rising of the sun; and by observing, at the same time, if they appear frightened and run off, they conclude that they have been attacked by the lion. Marking accurately the spot where the alarm took place, about eleven o'clock in the day, when the sun is powerful, and the enemy they seek is supposed to be fast asleep, they carefully examine the ground, and, finding him in a state of unguarded security, they lodge a poisoned arrow in his breast. The moment the lion is thus struck, he springs from his lair, and bounds off as helpless as the stricken deer. The work is done; the arrow of death has pierced his heart, without even breaking the slumbers of the lioness, which may have been lying beside him; and the Bushman knows where, in the course of a few hours, or even less time, he will find him dead, or in the agonies of death."*

The following interesting particulars respecting the lion are from the Travels of Sparrman, whose accounts may be strictly relied on. The first paragraph shows that the lion is capable of reflection, otherwise he would not have acted with so much judgment.

* Philip's South Africa, vol. ii. °

“Several Hottentots being a-hunting near Boshiesmanrivier, they perceived a lion dragging a buffalo from the plain to a neighbouring woody hill. They, however, soon forced it to quit its prey, in order to make a prize of it themselves; and found that this wild beast had had the sagacity to take out the buffalo's large and unwieldy entrails, in order to be able the easier to make off with the fleshy and more eatable part of the carcass. The lion, however, as soon as he saw, from the skirts of the wood, that the Hottentots had begun to carry off the flesh to the waggon, frequently peeped out upon them, and probably with no little mortification.”

“It is only on the plains that the hunters venture to go out on horseback after the lion. If it keeps in some coppice, or wood, on a rising ground, they endeavour to tease it with dogs till it comes out. They likewise prefer going together two or more in number, in order to be able to assist and rescue each other, in case the first shot should not take effect. When the lion sees the hunters at a great distance, it is universally allowed, that he takes to his heels as fast as ever he can, in order to get out of their sight; but, if they chance to discover him at a small distance from them, he is then said to walk off in a surly manner, but without putting himself in the least hurry, as though he were above showing any fear, when he finds himself discovered or hunted. He is therefore reported likewise, when he finds himself pursued with vigour, to be soon provoked to resistance, or, at least, he disdains any longer to fly. Consequently, he slackens his pace, and at length only sidles slowly off, step by step, all the while eyeing his pursuers askant, and finally makes a full stop, turns round upon them, and, at the same time giving himself a shake, roars with a short and sharp tone, in order to show his indignation, being ready to seize on them, and tear them in pieces. This is now precisely the time for the hunters to be upon the spot, or else to get as soon as possible within a certain range of him, yet so as, at the same time, to keep at a proper distance from each other; and he that is nearest, or most advantageously posted, and has the best mark of that part of the lion's body which contains his heart and lungs, must be the first to jump off his horse, and, securing the bridle by putting it round his arm, discharge his piece; then, in an instant, recovering his seat, must ride obliquely athwart his companions;

and, in fine, giving his horse the reins, must trust entirely to the speed and fear of this latter to convey him out of the reach of the fury of the wild beast, in case he has only wounded, or has absolutely missed him. In either of these cases, a fair opportunity presents itself for some of the other hunters to jump off their horses directly, as they may then take their aim, and discharge their pieces with greater coolness and certainty. Should this shot likewise miss, (which, however, seldom happens,) the third sportsman rides after the lion, which at that instant is in pursuit of the first or second, and, springing off his horse, fires his piece as soon as he has got within a proper distance, and finds a sufficiently convenient part of the animal present itself, especially obliquely from behind. If now the lion turns upon him too, the other hunters turn again, in order to come to his rescue with the charge, which they had loaded on horseback, while they were flying from the wild beast.

“No instance has ever been known of any misfortune happening to the hunters in chasing the lion on horseback. The African colonists, who are born in, or have had the courage to remove into the more remote parts of Africa, which are exposed to the ravages of wild beasts, are mostly good marksmen, and are far from wanting courage. The lion, that has the boldness to seize on their cattle—which are the most valuable part of their property—sometimes at their very doors, is as odious to them as he is dangerous and noxious. They consequently seek out these animals, and hunt them with the greatest ardour and glee, with a view to exterminate them. When the lion, therefore, comes upon their grounds, it is much the same as if they were going to fight *pro aris et focis*, and I have heard several yeomen at Agter Bruntjes Hoogtee, when I was out a-hunting with them, merely express a wish to meet with the lions, in case there were any in that neighbourhood, without mentioning a word about shooting them, a sign that, with regard to that part of the business, they were pretty sure of their hands.

“The lion is by no means hard to kill. Those who have had occasion to shoot several of these animals, have assured me, that while buffaloes and the larger species of antelopes will now and then make their escape, and run fairly off, with a ball in their bowels, or in the cavity of their abdomen,—of

which I myself have seen instances,—the lion, on the contrary, on being shot in this manner, will be thrown into a vomiting, and be disabled from running. But be that as it may, it is natural to suppose, that a well-directed shot which enters the heart or lungs, should suffice to kill the lion as well as the elephant, and every other creature: therefore, as M. de Buffon acknowledges that the lion's hide cannot withstand either ball or dart, it is inconceivable how it should come into this author's head to assert, without having the least authority for it, that this furious beast is hardly ever to be killed with a single shot. The hides of lions are looked upon as being inferior to, and more rotten than those of cows, and are seldom made use of at the Cape, excepting for the same purpose as horses' hides. I met with a farmer, however, who used a lion's hide for the upper leathers to his shoes, and spoke highly of them, as being pliable and lasting."

Night is the usual time when the lion goes in search of prey: and he never ventures to approach villages or the habitations of man at other times. Such is his strength, that he will carry off a horse which he has slaughtered, with apparent ease. In the miserable and remote Hottentot kraals, or villages, beyond the precincts of European civilization, hungry lions often commit dreadful havoc, even among the inhabitants. When the lion makes an attack on these wretched people, it is said, on good authority, that the old and infirm are put in his way; and, finding his prey so easily obtained, he will return night after night, and carry off a fresh victim, until the inhabitants are forced at length to abandon a situation where they are subject to perpetual fear.

In Campbell's Second Journey to Africa, the following description is given of a combat with a lion:—A lion had been near a Bushman's hut the whole night, waiting, as they supposed, for the arrival of its companions, to assist in attacking the family; and, if they had made the attack in conjunction with each other, it is probable they would have succeeded. Two Bootchuana herdsmen, attending near the place next morning, saw him, and ran towards Kok's-kraal, to inform the people. On their way thither they met six Girquas coming to attack the formidable creature, having already heard he was there. Advancing towards him, they fired and wounded, but did not disable him. Enraged by the

smart, he advanced to take revenge on his assailants. On seeing him approach, the Girquas instantly leaped from their horses, formed them into a close line, with their tails towards the lion, and took their stand at their horses' heads. The enraged animal flew upon a Bootchuana, who was not protected by the intervention of the horses, and who tried to defend himself with his skin-cloak, or caross. The lion, however, caught him by the arm, threw him on the ground, and, while the poor man still tried to defend himself, by keeping his caross wrapped round him, the lion got under it, and gnawed part of his thigh. His Bootchuana companion at that time threw his assagai, which penetrated the man's cloak, and entered the lion's back. The same Bootchuana threw another assagai, but, instead of taking the direction he intended, it pierced the body of a dog that was barking near. The Girquas would have fired, but they were afraid of shooting the man. To drive him away, if possible, they made a great noise, and threw some stones. The lion then left the man, and rushed towards them, when they again checked his attack, by turning the horses round. He next crept under the belly of a mare, and seized her by the fore-legs, but, with a powerful kick, she made him let go his hold. In revenge, and by one stroke of his paw, he tore open the body of the mare, and retired. After this, he tried to get round the horses to the men; but when within two yards of one of them, and on the point of making a spring, he was happily killed by a musket shot, the ball penetrating behind the ear.

The Hottentots often adopt crafty expedients for escaping or ensnaring the lion. An elderly Hottentot in the service of a Christian, near the upper part of Sunday river, on the Camdebo side, perceived a lion following him at a great distance for two hours together. Thence, he naturally concluded, that the lion only waited for the approach of darkness, in order to make him his prey; and, in the meantime, expected nothing else than to serve for this fierce animal's supper, inasmuch as he had no other weapon of defence than a stick, and knew that he could not get home before it was dark. But he was well acquainted with the nature of the lion, and its manner of seizing its prey, and, at the same time, had leisure to ruminate on the ways and means in which it was most likely that his existence would be put an end to. He at length hit on a method of saving his life,

for which, in fact, he had to thank his meditations upon death, and the small skill he had in zoology, (or, to speak plainly, his knowledge of the nature of animals.) For this purpose, instead of making the best of his way home, he looked out for a *kilphrans*, (so they generally call a rocky place, level and plain at top, and having a perpendicular precipice on one side of it,) and, sitting himself down on the edge of one of these precipices, he found, to his great joy, that the lion likewise made a halt, and kept the same distance as before. As soon as it grew dark, the Hottentot, sliding a little forwards, let himself down below the upper edge of the precipice upon a projecting part, or cleft of the rock, where he could just keep himself from falling. But, in order to cheat the lion still more, he set his hat and cloak on the stick, making with it at the same time a gentle motion just over his head, and a little way from the edge of the mountain. This crafty expedient had the desired success. He did not stay long in that situation, before the lion came creeping softly towards him like a cat, and mistaking the skin-cloak for the Hottentot himself, took his leap with such exactness and precision, as to fall headlong down the precipice, close to the snare which had been set up for him.

Sparrman says, "A yeoman, a man of veracity, (Jacob Kok, of Zeekoe-rivier,) related to me an adventure he had, in these words:—One day, walking over his lands with his loaded gun, he unexpectedly met with a lion. Being an excellent shot, he thought himself pretty certain, in the position he was in, of killing it, and therefore fired his piece. Unfortunately, he did not recollect that the charge had been in it for some time, and consequently, was damp, so that his piece hung fire, and the ball, falling short, entered the ground close to the lion. In consequence of this, he was seized with a panic, and took directly to his heels; but, being soon out of breath, and closely pursued by the lion, he jumped up on a little heap of stones, and there made a stand, presenting the butt-end of his gun to his adversary, fully resolved to defend his life as well as he could to the utmost. My friend did not take upon him to determine, whether this position and manner of his intimidated the lion or not; it had, however, such an effect upon the creature, that it likewise made a stand; and what was still more singular, laid itself down at the distance of a few paces from the heap of stones, seemingly quite

unconcerned. The sportsman, in the meanwhile, did not dare to stir a step from the spot ; besides, in his flight, he had the misfortune to lose his powder-horn. At length, after waiting a good half-hour, the lion rose up, and, at first, went very slowly, and step by step, as if it had a mind to steal off ; but, as soon as it got to a greater distance, it began to bound away at a great rate. It is very probable, that the lion, like the hyena, does not easily venture upon any creature that makes a stand against it, and puts itself in a posture of defence. It is well known, that it does not, like the hound, find out its prey by the scent, neither does it openly hunt other animals. At least, the only instance ever known of this, is that which I have mentioned before, as having hunted an elk-antelope ; though it might possibly be, that this wild-beast was reduced by extreme hunger to such an extraordinary expedient. The lion, nevertheless, is swift of foot. Two hunters informed me, that an imprudent and foolhardy companion of theirs was closely pursued by a lion in their sight, and very nearly overtaken by it, though he was mounted on an excellent hunter."

The following account of the preservation of a Hottentot, when attacked by a lion, is given in the Journal of Mr Kay, one of the missionaries in South Africa. We quote his own words :

" When divine service was over, I visited a poor sick Hottentot, who recently experienced one of the most remarkable and providential deliverances that I ever read or heard of. I found him in great pain from the shocking wounds which he had received on the occasion ; and, in the course of conversation, he furnished me with the following particulars of his escape from the jaws of a lion, which he ascribes wholly to the gracious interposition of the Father of Mercies, and which are therefore worthy of being recorded to his glory. About three weeks or a month ago, he went out on a hunting excursion, accompanied by several other natives. Arriving on an extensive plain, where there was abundance of game, they discovered a number of lions also, which appeared to be disturbed by their approach. A prodigiously large male immediately separated himself from the troop, and began slowly to advance towards the party, the majority of whom were young and altogether unaccustomed to rencontres of so formidable a nature. When droves of timid antelopes, or spring-boks only, came in their way, they made a

great boast of their courage, but the very appearance of the forest's king made them tremble. While the animal was yet at a distance, they all dismounted to prepare for firing, and according to the custom on such occasions, began tying their horses together by means of the bridles, with the view of keeping the latter between them and the lion, as an object to attract his attention, until they were able to take deliberate aim. His movements, however, were at length too swift for them. Before their horses were properly fastened to each other, the monster made a tremendous bound or two, and suddenly pounced upon the hind parts of one of them, which, in its fright, plunged forward, and knocked down the poor man in question, who was holding the reins in his hand. His comrades instantly took flight, and ran off with all speed; and he, of course, rose as quickly as possible, in order to follow them. But no sooner had he regained his feet, than the majestic beast, with a seeming consciousness of his superior might, stretched forth his paw, and striking him just behind the neck, immediately brought him to the ground again. He then rolled on his back, when the lion set his foot upon his breast, and lay down upon him. The poor man now became almost breathless, partly from fear, but principally from the intolerable pressure of his terrific load. He endeavoured to move a little to one side, in order to breathe, but feeling this, the creature seized his left arm close to the elbow; and after once laying hold with his teeth, he continued to amuse himself with the limb for some time, biting it in sundry different places, down to the hand, the thick part of which seemed to have been pierced entirely through. All this time the lion did not appear to be angry, but he merely caught at his prey, like a cat sporting with a mouse that is not quite dead; so that there was not a single bone fractured, as would in all probability have been the case, had the creature been hungry or irritated. Whilst writhing in agony, gasping for breath, and expecting every moment to be torn limb from limb, the sufferer cried to his companions for assistance, but cried in vain. On raising his head a little, the beast opened his dreadful jaws to receive it, but providentially the hat, which I saw in its rent state, slipped off, so that the points of the teeth only just grazed the surface of the skull. The lion now set his foot upon the arm from which the blood was freely flowing; his

fearful paw was soon covered therewith, and he again and again licked it clean ! The idea verily makes me shudder while I write. But this was not the worst ; for the animal then steadily fixed his flaming eyes upon those of the man, smelt on one side, and then on the other, of his face, and, having tasted the blood, he appeared half-inclined to devour his helpless victim. ‘At this critical moment,’ said the poor man, ‘I recollected having heard that there is a God in the heavens, who is able to deliver in the very last extremity, and I began to pray that he would save me, and not allow the lion to eat my flesh and drink my blood.’ Whilst thus engaged in calling upon God, the beast turned himself completely round. On perceiving this, the Hottentot made an effort to get from under him ; but no sooner did the creature observe his movement, than he laid terrible hold of his right thigh. This wound was dreadfully deep, and evidently occasioned the sufferer most excruciating pain. He again sent up his cry to God for help : nor were his prayers in vain. The huge animal soon afterwards quietly relinquished his prey, though he had not been in the least interrupted. Having deliberately risen from his seat, he walked majestically off, to the distance of thirty or forty paces, and then lay down in the grass, as if for the purpose of watching the man. The latter being happily relieved of his load, ventured to sit up, which circumstance immediately attracted the lion’s attention : nevertheless, it did not induce another attack, as the poor fellow naturally expected ; but, as if bereft of power, and unable to do any thing more, he again arose, took his departure, and was seen no more. The man seeing this, took up his gun and hasted away to his terrified companions, who had given him up for dead. Being in a state of extreme exhaustion, from loss of blood, he was immediately set upon his horse, and brought, as soon as was practicable, to the place where I found him.”

Every body has read the story of Androcles and the lion ; and many other instances are on record of the attachment of lions to individuals of the human species. Of these we shall here record a few :—A great plague raged at Naples, in the year 1650. Sir George Davis, who was English consul there at the time, in order to avoid the disease, retired to Florence. Happening one day to visit the menagerie of the Grand Duke, he noticed a lion

at the farther end of one of the dens, which lay in sullen majesty, and which the keepers informed him they had been unable to tame, although every effort had been used for upwards of three years. Sir George had no sooner reached the gate of the den, than the lion ran to it, and evinced every demonstration of joy and transport. The animal reared himself up, purred like a cat when pleased, and licked the hand of Sir George, which he had put through the bars. The keeper was astonished, and, frightened for the safety of his visitor, entreated him not to trust an apparent fit of frenzy, with which the animal seemed to be seized; for he was, without exception, the most fierce and sullen of his tribe which he had ever seen. This, however, had no effect on Sir George, who, notwithstanding every entreaty on the part of the keeper, insisted on entering the lion's den. The moment he got in, the delighted lion threw his paws upon his shoulders, licked his face, and ran about him, rubbing his head on Sir George, purring and fawning like a cat, when expressing its affection for its master. This occurrence became the talk of Florence, and reached the ears of the Grand Duke, who sent for Sir George, and requested an interview at the menagerie, that he might witness so extraordinary a circumstance, when Sir George gave the following explanation: "A captain of a ship from Barbary gave me this lion, when quite a whelp. I brought him up tame; but when I thought him too large to be suffered to run about the house, I built a den for him in my court-yard. From that time he was never permitted to be loose, except when brought to the house, to be exhibited to my friends. When he was five years old, he did some mischief, by pawing and playing with people, in his frolicsome moods. Having griped a man one day a little too hard, I ordered him to be shot, for fear of myself incurring the guilt of what might happen. On this, a friend, who happened to be then at dinner with me, begged him as a present. How he came here, I know not." The Grand Duke of Tuscany, on hearing his story, said it was the very same person who had presented him with the lion.

In the history of the crusades, it is related, that Geoffroy de la Tour, one of the knights that went upon the first crusade to the Holy Land, as he rode through a forest, suddenly heard a cry of distress. Hoping to rescue some unfortunate sufferer, he rode boldly into the thicket; but what was his astonishment,

when he beheld a lion with a large serpent coiled round his body? To relieve the distressed, was the duty of every true knight. Animated with this sentiment, it made no difference to him whether he was called upon to exert it for the preservation of man or beast; he, therefore, with a single stroke of his sword, killed the serpent, and extricated the lion from his perilous situation. From that hour, the thankful animal constantly accompanied his deliverer, whom he followed like a dog, and never displayed his natural ferocity but at his command. At length the crusade was fortunately terminated, and the knight prepared to set sail for Europe. He had wished to take his faithful lion with him; but the master of the vessel in which he sailed, could not be prevailed upon to admit him on board, and he was therefore obliged to leave him on shore. The lion, when he saw himself separated from his beloved master, first began to roar hideously; and, seeing the ship diverging from him, plunged into the waves, and endeavoured to swim after it. But all his efforts to reach it were in vain. At length, his strength being exhausted, he sunk; and the ocean engulfed this generous animal, whose unshaken fidelity had well deserved a better fate.

An instance of friendship and memory in a lion is thus related by Mr Hope:—"One day I had the honour of dining with the Duchess of Hamilton. After dinner, the company attended her Grace, to see a lion fed, that she had in the court. While we were admiring his fierceness, and teasing him with sticks, to make him abandon his prey, and fly at us, the porter came and informed the Duchess, that a sergeant, with some recruits at the gate, begged to see the lion. Her Grace, with great condescension and good nature, asked permission of the company to admit the travellers. They were accordingly admitted. At the moment, the lion was growling over his prey. The sergeant, advancing to the cage, called, 'Nero, Nero, poor Nero! Don't you know me?' The animal instantly turned his head to look at him; then rose up, left his food, and came wagging his tail to the side of the cage. The man put his hand upon him, and patted him, telling us, at the same time, that it was three years since they had seen each other, and that the care of the lion on his passage from Gibraltar had been committed to him; and he was happy to see the poor beast show so much gratitude for his attention. The lion, indeed, seemed perfectly pleased. He

went to and fro, rubbing himself against the place where his benefactor stood, and licked the sergeant's hand, as he held it out to him. The man wanted to go into the cage to him ; but was withheld by the company, who were not altogether convinced that it would be save for him to do so."

A lion, which the French at Fort St Louis, in Africa, were about to send to Paris, on account of his great beauty, having fallen sick before the departure of the vessel that was to convey him to Europe, was loosed from his chain, and carried into an open space of ground. M. Compagnon, author of an *Account of a Journey to Bambuk*, as he returned home from hunting, found this animal in a very exhausted state, and, out of compassion, poured a small quantity of milk down his throat, whereby the lion was greatly refreshed, and soon after recovered his perfect health. From that time, the lion was so tame, and acquired so great an attachment for his benefactor, that he ate from his hand, and followed him about every where like a dog, with nothing to confine him, but a string tied about his neck.

M. Felix, the keeper of the animals at Paris, in the year 1808, brought two lions, a male and female, to the national menagerie. About the beginning of the following June, he was taken ill, and was unable to attend the lions. Another person, therefore, was under the necessity of performing this duty. The male, sad and solitary, remained from that moment constantly seated at the end of his cage, and refused to receive any thing from the stranger, whose presence was hateful to him, and whom he often menaced, by bellowing. The company even of the female seemed now to displease him ; and he paid no attention to her. The uneasiness of the animal afforded a belief, that he was really ill ; but no one dared to approach him. At length Felix recovered ; and, with intention to surprise the lion, he crawled softly to the cage, and showed only his face between the bars. The lion in a moment made a bound, leaped against the bars, patted him with its paws, licked his face, and trembled with pleasure. The female also ran to him : but the lion drove her back, and seemed angry, and, fearful that she should snatch any favours from Felix, a quarrel was about to take place ; but Felix entered the cage to pacify them. He caressed them by turns ; and was afterwards frequently seen between them. He

had so great a command over these animals, that whenever he wished them to separate and retire to their cages, he had only to give the order. When he had a desire that they should lie down, and show strangers their paws or throats, on the least sign they would lie on their backs, hold up their paws, one after another, open their throats; and, as a recompense, obtain the favour of licking his hand. These animals were of the Asiatic breed, and, at the time above mentioned, were five years and a half old.

In the beginning of last century, there was in the menagerie at Cassel, a lion that showed an astonishing degree of tameness towards the woman that had the care of him. This went so far, that the woman, in order to amuse the company that came to see the animal, would often rashly place not only her hand, but even her head, between his tremendous jaws. She had often performed this experiment, without suffering any injury. Upon one occasion, however, having introduced her head as usual into the lion's mouth, the animal made a sudden snap, and killed her on the spot. Undoubtedly, this catastrophe was unintentional on the part of the lion; for, probably, at the fatal moment, the hair of the woman's head had irritated the lion's throat, and compelled him to sneeze or cough. At least, this supposition seems to be confirmed by what followed; for, as soon as the lion perceived that he had killed his attendant, the good tempered, grateful animal exhibited signs of the deepest melancholy, laid himself down by the side of the dead body, which he would not suffer to be taken from him, refused to take any food, and in a few days pined himself to death.

In the year 1801, there were kept in one den, at Exeter Change, London, a lion and lioness, which were imported from Africa together. The animals were each about eighteen months old, and were attended by a negro, who accompanied them home, and also had reared them, from the time they were whelps. With this negro they were in habits of great intimacy; and he frequently entered their den, when they would frisk round him with all the playfulness of kittens. He often had a table, with pipes and glasses, in their cell, and, sitting down in it, indulged himself in the luxury of smoking his pipe. If, however, their gambols became too noisy, he had only to signify his displeasure, by stamping his foot, or even to give them an angry

look, when they would immediately become quiet, and peaceably lie down by his side. He, however, would not at all times venture himself with them; for they were liable to irregularity of temper, from being thoughtlessly irritated by those who came to see them. When their temper was thus ruffled, he invariably refrained from trusting himself with them, nor would he even do so while they were feeding. The proprietor of Exeter Change parted with this man, which the female took so much to heart, that she loathed her food, pined away, and soon afterwards died.

A remarkable instance of the docility of a lion occurred some time ago in Chester: The head keeper of Messrs Earl, James, and Son's menagerie being absent, the magnificent male lion, which forms part of this collection, was fed on Sunday night by a strange keeper, who omitted to fasten the door when he left the den. The watchman, when going his rounds about three in the morning, discovered the king of beasts deliberately walking about the yard, and surveying the surrounding objects with apparent curiosity. The watchman immediately went to call the proprietors, and some of the people connected with the exhibition; and, when they arrived, they found the lion *couchant* on the top of one of the coaches in the coachmaker's yard, in Prince's Street, as if he alone deserved to be free, and, conscious of his royal dignity, was giving audience to his quadruped subjects, who were in durance around him. With very little entreaty from the proprietors, the monarch of the forest deigned to descend from his throne, and very graciously followed a young lady, the proprietor's daughter, into his den again.

Notwithstanding that strength of attachment to which lions are liable, numerous accidents have occurred, arising either from carelessness or temerity on the part of those who have the animals in keeping. In the anecdotes already given, notice is taken of a poor woman, the keeper of a lion, who lost her head in the end, by her practice of thrusting it into the animal's mouth—a practice which cannot be sufficiently reprobated as at once dangerous to the actor, and disagreeable to the spectator. Instances of similar accidents may be given.

Rubens, when painting a lion from the only live specimen he ever had in his power to study, expressed a desire to see him in the act of roaring. Anxious to please him, the keeper plucked

a whisker off the royal beast, and with such success, that he daily repeated the experiment. Rubens, however, perceived such deadly wrath in the countenance of the animal, that he begged the man to desist ; his hint was at first regarded, but too soon neglected. The consequence was dreadful ; the enraged lion struck down the keeper, and lay on him the whole day ; in the evening he was shot by a body of guards, but in the agonies of death the keeper was torn to pieces.

Under the reign of Augustus, King of Poland, and Elector of Saxony, a lion was kept in the menagerie at Dresden, between whom and his attendant such a good understanding subsisted, that the latter was in the practice of entering the cage of the former with his food. The keeper's usual habit was a green jacket ; and the lion had long manifested gratification when the man paid him a visit. Upon a certain occasion, the keeper having been at church to receive the sacrament, had put on a black coat, as is usual in that country on such occasions, and he did not think of laying it aside before giving the animal his dinner. The unusual appearance of this attire enraged the lion. He leapt at his keeper, and struck his claws into his shoulders. The man spoke to him gently, when the well known tone of his voice brought the lion in some degree to his recollection. Doubt, however, still appeared expressed in his terrific features ; however, he did not quit his hold. An alarm was raised ; the wife and children ran to the place with shrieks of terror. Soon some grenadiers of the guard arrived, and offered to shoot the animal, as there seemed, in this critical moment, to be no other means of extricating the man. But the keeper, who was attached to the lion, begged them not to do it, as he hoped to extricate himself at less expense. This, however, he was unable to accomplish for nearly a quarter of an hour, during which the lion kept his hold, shook his mane, lashed his sides with his tail, and rolled his fiery eyes. At length, the man felt himself unable to sustain the animal's weight, and yet, any serious effort to escape would have been at the immediate hazard of his life. He therefore desired the grenadiers to fire, which they did through the grating, and killed the lion instantaneously ; but, in the same moment, perhaps only by a convulsive dying grasp, he squeezed the keeper between his powerful paws with such force, that he broke his arms, ribs, and spine ; and they both expired at the

same time ! This anecdote goes far to prove, that the sense of smell is deficient in the lion, and shows clearly that his strength is immense.

The attachment which lions sometimes imbibe towards animals not of their own species is remarkable :—Some time ago, for the purpose of seeing the manner in which the lion pounces on his prey, a little dog was most cruelly put into the den of one, in the Royal Menagerie at the Tower of London. No sooner was the poor dog thrown into the lion's apartment, than he became much afraid, and skulked into the most remote corner of it. The noble lion, however, looked upon the little trembler with the utmost complacency, and refrained from touching him ; and the dog seeing the lion's forbearance, soon ventured to approach him. In a day or two, they became quite familiar, and thenceforward lived in perfect harmony, as far as the lion was concerned ; although the dog frequently had the temerity to dispute his share of food with the king of beasts, who magnanimously treated him with the greatest forbearance, by allowing him to satisfy his appetite before he thought of making a meal himself.

During the present year, 1832, a bear was taken to the menagerie exhibiting at New Orleans, and let down into the cage of an African lion, 24 years of age, with the belief that it would be immediately torn to pieces. Many people assembled under the awning which encompasses the exhibition, to witness the scene, but all were disappointed and struck with astonishment—for although the bear, so soon as he had reached the bottom of the cage, placed himself in a fighting position, and once or twice flew at the lion, with the apparent intention to commence the battle, the lion did not attempt to injure it, but on the contrary, after some time had elapsed, placed his paw on the bear's head, as if to express his pity for its helpless situation, and evinced every disposition to cultivate friendship. Having heard and read much (says the New Orleans Emporium) of the lion's nobleness of disposition, and understanding that the bear was still in the cage, prompted by curiosity we visited the menagerie this morning, and actually saw them together. The manager of the lion tells us that since the bear has been put into the cage, no person has dared to approach it, and that the lion had not slept for three hours, but continues constantly

awake to guard his weaker companion from danger. "The lion," says the manager, "suffers the bear to eat of whatever is thrown into the cage, until he has enough, but will scarcely touch food himself." During the time that we remained, the lion once or twice walked to the end of the cage opposite to that at which the bear was lying, and some person motioned his hand towards the bear, but so soon as the lion saw it, he sprang to the bear, and kept his head resting over it for some time. He is so fatigued with watching, that as soon as he lies down he falls asleep, but awakes again at the first noise that is made, and springs to the object of his care.

Lion fights were favourite amusements of the ancients: notices of them will be found in Goldsmith. In our own day, lions have been baited by dogs:—In the year 1791, at which period the custom of baiting wild beasts still existed in the city of Vienna, a combat was to be exhibited between a lion and a number of dogs. As soon as the noble animal made his appearance, four large bull-dogs were let loose upon him, three of which, however, when they came near him, took fright, and ran away. One only had courage to remain and make the attack. The lion, without rising from the ground on which he was lying, showed the dog, by a single stroke with his paw, how greatly his superior he was in strength; for the dog was instantly stretched motionless on the ground. The lion drew his victim towards him, and laid his fore paws upon him, in such a manner that only a small part of his body could be seen. Every one imagined that the dog was dead, and that the lion would soon rise and devour him. But they were mistaken: the dog began to move, and struggle to get loose, which the lion permitted him to do. He seemed merely to have warned him not to trespass any more. But, when the dog attempted to run away, and had already got half over the inclosure, the lion's indignation seemed to be excited. He sprang from the ground, and, in two leaps, reached the fugitive, who had just got as far as the paling, and was whining to have it opened for him to escape. The flying animal had called the instinctive propensity of the monarch of the forest into action,—the defenceless enemy now excited his pity; for the generous lion stepped a few paces backward, and looked quietly on, while a small door was opened to let the dog out of the inclosure. This unequivocal

trait of generosity moved every spectator. A shout of applause resounded throughout the assembly, which had enjoyed a satisfaction of a description far superior to what they had expected.

So late as 1825, a remarkable exhibition took place at Warwick, of two combats between lions and dogs. The tempers of the lions—Nero and Wallace—were very different. Nero, a docile animal, was too innocent for combat. In fact, he was so tame, that a stranger might with safety approach him. Not so Wallace. He appeared as wild as if just caught in a forest, and would only allow one or two, known to him as feeders, to approach his den, and that only when he was in a mild mood. Wallace was whelped at Edinburgh in September, 1819, and weighed about four hundred pounds. He was turned from his den on the same stage where Nero fought, which was well ironed round. The match was, for a hundred sovereigns, *First*, Three couple of dogs to be slipt at him, two at a time. *Second*, Twenty minutes, or more, as the umpires should think fit, to be allowed between each attack. *Third*, the dogs to be handed to the cage once only. We quote the newspaper account.

The Fight.—In the first round, Tinker and Ball were let loose, and both made a gallant attack. The lion heard their barking, and waited for them, as if aware of his foes. He showed himself a forest lion, and fought like one. He clapped his paw upon poor Ball, took Tinker in his teeth, and deliberately walked round the cage with him, as a cat would do with a mouse. Ball, released from the paw, worked all he could, but Wallace merely treated his slight punishment by an occasional kick. He at length dropped Tinker, who crawled off the stage as well as he was able. The lion then seized Ball by the mouth, and played precisely the same game, as if he had been trained to it. Ball would have been demolished, but his second got hold of him through the bars, and hauled him away. Betting five to four on the lion at the onset, was now two to one. *Bout Second.*—Turpin, a London, and Sweep, a Liverpool dog, made an excellent attack, but it was three or four minutes before the ingenuity of their seconds could get them to make the assault. Wallace squatted on his haunches, and placed himself erect at the slope where the dogs mounted the cage, as if he

awake to guard his weaker companion from danger. "The lion," says the manager, "suffers the bear to eat of whatever is thrown into the cage, until he has enough, but will scarcely touch food himself." During the time that we remained, the lion once or twice walked to the end of the cage opposite to that at which the bear was lying, and some person motioned his hand towards the bear, but so soon as the lion saw it, he sprang to the bear, and kept his head resting over it for some time. He is so fatigued with watching, that as soon as he lies down he falls asleep, but awakes again at the first noise that is made, and springs to the object of his care.

Lion fights were favourite amusements of the ancients: notices of them will be found in Goldsmith. In our own day, lions have been baited by dogs:—In the year 1791, at which period the custom of baiting wild beasts still existed in the city of Vienna, a combat was to be exhibited between a lion and a number of dogs. As soon as the noble animal made his appearance, four large bull-dogs were let loose upon him, three of which, however, when they came near him, took fright, and ran away. One only had courage to remain and make the attack. The lion, without rising from the ground on which he was lying, showed the dog, by a single stroke with his paw, how greatly his superior he was in strength; for the dog was instantly stretched motionless on the ground. The lion drew his victim towards him, and laid his fore paws upon him, in such a manner that only a small part of his body could be seen. Every one imagined that the dog was dead, and that the lion would soon rise and devour him. But they were mistaken: the dog began to move, and struggle to get loose, which the lion permitted him to do. He seemed merely to have warned him not to trespass any more. But, when the dog attempted to run away, and had already got half over the inclosure, the lion's indignation seemed to be excited. He sprang from the ground, and, in two leaps, reached the fugitive, who had just got as far as the paling, and was whining to have it opened for him to escape. The flying animal had called the instinctive propensity of the monarch of the forest into action,—the defenceless enemy now excited his pity; for the generous lion stepped a few paces backward, and looked quietly on, while a small door was opened to let the dog out of the inclosure. This unequivocal

trait of generosity moved every spectator. A shout of applause resounded throughout the assembly, which had enjoyed a satisfaction of a description far superior to what they had expected.

So late as 1825, a remarkable exhibition took place at Warwick, of two combats between lions and dogs. The tempers of the lions—Nero and Wallace—were very different. Nero, a docile animal, was too innocent for combat. In fact, he was so tame, that a stranger might with safety approach him. Not so Wallace. He appeared as wild as if just caught in a forest, and would only allow one or two, known to him as feeders, to approach his den, and that only when he was in a mild mood. Wallace was whelped at Edinburgh in September, 1819, and weighed about four hundred pounds. He was turned from his den on the same stage where Nero fought, which was well ironed round. The match was, for a hundred sovereigns, *First*, Three couple of dogs to be slipt at him, two at a time. *Second*, Twenty minutes, or more, as the umpires should think fit, to be allowed between each attack. *Third*, the dogs to be handed to the cage once only. We quote the newspaper account.

The Fight.—In the first round, Tinker and Ball were let loose, and both made a gallant attack. The lion heard their barking, and waited for them, as if aware of his foes. He showed himself a forest lion, and fought like one. He clapped his paw upon poor Ball, took Tinker in his teeth, and deliberately walked round the cage with him, as a cat would do with a mouse. Ball, released from the paw, worked all he could, but Wallace merely treated his slight punishment by an occasional kick. He at length dropped Tinker, who crawled off the stage as well as he was able. The lion then seized Ball by the mouth, and played precisely the same game, as if he had been trained to it. Ball would have been demolished, but his second got hold of him through the bars, and hauled him away. Betting five to four on the lion at the onset, was now two to one. *Bout Second.*—Turpin, a London, and Sweep, a Liverpool dog, made an excellent attack, but it was three or four minutes before the ingenuity of their seconds could get them to make the assault. Wallace squatted on his haunches, and placed himself erect at the slope where the dogs mounted the cage, as if he

thought they dared not approach. The dogs, when on, fought gallantly, but both were punished in less than a minute after the attack; and, although they were truly game dogs, maiming damped their courage. The London dog fled as soon as he could extricate himself from the lion's grasp, and Sweep would have been killed on the spot, but he was released, and bolted as well as his assistant, Turpin. Some murmurs were heard that the dog Sweep ought to go on again. The umpires, however, said "No." It was only a wrangle, for the dog could scarcely have been dragged on. It was now all the pictures in Warwick Castle to the broken casements of the Factory on the noble Wallace, who, however, was supposed to have shied the dogs.

A secret committee was now held amongst the owners of the dogs: Wedgebury, the purveyor of the London dogs, swore with more energy than eloquence, that he would not bring his dog Billy to the scratch. Edwards had got his dog Tiger ready, and said to Wedgebury, "You surely would not disappoint the gentlemen!" This seemed to have an impression on Wedgebury, who untied Billy, casting a most piteous look upon the wounded dogs around him. Billy was more willing than his master, who was now obliged to let him loose. Both went to work; Wallace fancied Billy, grasped him by the loins, and, when shaking him, Tiger ran away. Billy was not exactly killed, but bit an inch or two deep in the loins only. Turk died of his wounds, Captain, Billy, and Sweep, all recovered; but it required a great deal of nursing to preserve their lives.

The den in which Nero and Wallace fought was ten feet high, and fifty-seven in circumference, the bars of a proportionable thickness, and nine inches apart, to allow the dogs to pass between them.

Notwithstanding his meekness, Nero did not readily forget the ill usage which he had received, as will be seen from the following anecdote.

Wedgebury, the proprietor of the dogs, Turk, Captain, Billy, and Sweep, that fought with Nero and Wallace, happened soon after the fight to return to Warwick, and visited Wombwell's menagerie. He was standing within a quarter of a yard of the den in which Nero was confined. The lion, on hearing Wedgebury's voice, instantly recognised it, and made a dreadful plunge at him; and, protruding one of his paws through the iron rails,

seized hold of the back part of his coat. Wedgebury, however, got away, without any injury to his person ; but was compelled to have the assistance of a tailor to repair his coat and waistcoat, and quite glad he had escaped in a whole skin, and without requiring the assistance of a surgeon. It is impossible to give an adequate idea of the rage exhibited by Nero on this particular occasion.

THE LIONESS.

THE lioness is distinguished from the lion by the absence of the mane, and also by being of a smaller size, and more slender and delicate formation. The position in which she holds her head forms another characteristic between her and her royal mate—the head of the lion being almost uniformly elevated and thrown upwards, while that of the lioness is generally held on a level with the line of her back, which assimilates her more closely to the inferior races of the feline tribe. Although inferior in muscular strength to the lion, she is equally formidable as an opponent, from the impetuosity of her temper and the superior agility of her motions. The excitability of her disposition is especially displayed while rearing her cubs. There are few animals, indeed, more tenderly attached to their offspring than the lioness. This inherent property produces in her an astonishing change of demeanour whenever she becomes a mother : for, it has been observed, that lionesses which were in the highest state of domestication, lay aside every vestige of their former docility when they have cubs. On such occasions, all her former attachments are abandoned, and old established friendship is no longer a safeguard to those approaching her. In this condition, she guards her young with a watchful feverishness, which keeps her in continual excitement, and, on the slightest grounds, she breaks out in violent and terrific fits of rage ; and, so tremendous is her fury at times, that the bars seem insufficient to confine her.

The lioness goes with young five months, and produces from two to eight at a birth ; and the young ones are generally somewhat striped like a tiger, till they have nearly reached their adult state. They are five years in arriving at perfection.

Notwithstanding the ferocity attributed to the lioness while rearing her cubs, instances are on record in which she is said to have displayed an amiable and tractable spirit. Two of these we shall here give, without, however, pledging ourselves to their accuracy:—Chernier, in his *Present State of Morocco*, says, “I have been assured that a Brebe, who went to hunt the lion, having proceeded far into a forest, happened to meet with two whelps of a lion that came to caress him. The hunter stopped with the little animals, and, waiting for the coming of the sire or the dam, took out his breakfast, and gave them a part. The lioness arrived, unperceived by the huntsman, so that he had not time, or perhaps wanted the courage, to take his gun. After having for some time looked at the man that was thus feasting her young, the lioness burst away, and soon after returned, bearing with her a sheep, which she came and laid at the huntsman’s feet. The Brebe, thus become one of the family, took this occasion to make a good meal,—skinned the sheep, made a fire, and roasted a part, giving the entrails to the young. The lion, in his turn, came also; and, as if respecting the rights of hospitality, showed no tokens whatever of ferocity. Their guest, the next day, having finished his provisions, returned home, and came to a resolution never more to kill any of these animals, the noble generosity of which he had so fully experienced. He stroked and caressed the whelps at taking leave of them, and the dam and sire accompanied him till he was safely out of the forest.”

The other instance is as follows, and is scarcely less credible:—Part of a ship’s crew being sent ashore on the coast of India, for the purpose of cutting wood, the curiosity of one of the men having led him to stray to a considerable distance from his companions, he was much alarmed by the appearance of a large lioness, who made towards him; but, on her coming up, his fear was allayed, by her lying down at his feet, and looking very earnestly, first in his face, and then at a tree some little distance off. After repeating these looks several times, she arose, and proceeded towards the tree, looking back, as if she wished the sailor to follow her. At length, he ventured, and, coming to the tree, perceived a huge baboon, with two young cubs in her arms, which he immediately supposed to be those of the lioness, as she couched down like a cat, and seemed to eye

them very steadfastly. The man, being afraid to ascend the tree, decided on cutting it down, and, having his axe with him, he set actively to work, when the lioness seemed most attentive to what he was doing. When the tree fell, she pounced upon the baboon, and, after tearing her in pieces, she turned round, and licked the cubs for some time. She then returned to the sailor, and fawned round him, rubbing her head against him in great fondness, and in token of her gratitude for the service he had done her. After this, she carried the cubs away one by one, and the sailor rejoined his companions, much pleased with the adventure.

Like her royal partner, the lioness is capable of acts of generosity, and of attaching herself to animals not of her own tribe :— In the year 1773, a lioness in the Tower formed such an attachment for a little dog which was kept with her in the den, that she would not eat till the dog was first satisfied. When the lioness was near her time of whelping, it was thought advisable to take the dog away. Shortly after, when the keepers were cleaning the den, the dog, by some means, got into it, and approached the lioness with his wonted fondness, who was then playing with her cubs. She made a sudden spring at him, and, seizing the poor little animal in her mouth, seemed in the act of tearing him to pieces ; but, as if she momentarily recollected her formed fondness for him, carried him to the door of the den, and suffered him to be taken out unhurt.

Another instance of the attachment of a lioness to a dog was to be found at the Jardin des Plantes, of Paris, in the year 1812. She permitted the dog to live in her den, and the two animals would frequently gambol together, and caress one another. Sometimes the keeper let the dog out for exercise, on which occasions the lioness displayed great uneasiness till his return.

Of the jealous fury of the lioness, we have one illustration :— A lion and lioness were kept in the menagerie of the Landgrave of Hesse Cassel, in two cages, close to each other, separated by a single grating, and communicating by means of a door, which could be opened whenever it was thought proper to let the two animals together. They were both very tame towards the keeper and his wife, who had the care of them. On one occasion, the latter having caressed the lion for a considerable

time, the lioness observed it with evident marks of displeasure, and evinced an inclination to break through the grating, in order to get at her supposed rival. Unfortunately, the door by which the two cages communicated with each other, not being properly secured, gave way, upon which the lioness entered the den of the lion, and flew at the woman, who would undoubtedly have fallen a sacrifice to her jealous fury, had not the lion immediately interposed and defended her.

Not many years ago, a curious example of the ferocity of the lioness occurred in England:—The Exeter mail-coach, on its way to London, was attacked on Sunday night, the 20th October, 1816, at Winter's-Law-Hut, seven miles from Salisbury, in a most extraordinary manner. At the moment when the coachman pulled up, to deliver his bags, one of the leading horses was suddenly seized by a ferocious animal. This produced a great confusion and alarm. Two passengers, who were inside the mail, got out, and ran into the house. The horse kicked and plunged violently; and it was with difficulty the coachman could prevent the carriage from being overturned. It was soon observed by the coachman and guard, by the light of the lamps, that the animal which had seized the horse was a huge lioness. A large mastiff dog came up and attacked her fiercely, on which she quitted the horse, and turned upon him. The dog fled, but was pursued and killed by the lioness, within about forty yards of the place. It appears that the beast had escaped from a caravan, which was standing on the roadside, and belonged to a menagerie, on its way to Salisbury Fair. An alarm being given, the keepers pursued and hunted the lioness, carrying the dog in her teeth, into a hovel under a granary, which served for keeping agricultural implements. About half past eight, they had secured her effectually, by barricading the place, so as to prevent her escape. The horse, when first attacked, fought with great spirit; and if he had been at liberty, would probably have beaten down his antagonist with his fore feet; but in plunging, he embarrassed himself in the harness. The lioness, it appears, attacked him in front, and springing at his throat, had fastened the talons of her fore feet on each side of his gullet, close to the head, while the talons of her hind feet were forced into the chest. In this situation she hung, while the blood was seen streaming, as if a vein had been opened by a lancet. The furious

animal missed the throat and jugular vein; but the horse was so dreadfully torn, that he was not at first expected to survive. The expressions of agony, in his tears and moans, were most piteous and affecting. Whether the lioness was afraid of her prey being taken from her, or from some other cause, she continued a considerable time after she had entered the hovel, roaring in a dreadful manner, so loud, indeed, that she was distinctly heard at the distance of half a mile. She was eventually secured, and taken to her den; and the proprietor of the menagerie did not fail to take advantage of the incident, by having a representation of the attack painted in the most captivating colours, and hung up in front of his establishment. We have seen the menagerie, with this attraction, both in Edinburgh and Glasgow.

The lioness was considered a very domesticated creature, and, before this, had never manifested marks of ferocity. But this proves, that it is not safe to trust even the most docile of these animals.

THE TIGER.

THE tiger is by no means held in the same popular respect and veneration as the lion, although it differs little from that animal either in size, power, external form, or natural disposition. While the lion has been esteemed the type and standard of heroic perfection, the tiger has been looked upon by mankind in general as an emblem of blood-thirstiness, treachery, and untameable ferocity. The recorded observations, however, of naturalists and travellers sufficiently prove the gratuitous nature of such popular distinctions, and that in character and habits, as well as corporeal structure, the differences between the lion and tiger are in reality slight and unessential.

The mane, which adds so much to the dignified look of the lion, is wanting in the tiger; but this is compensated by a beautiful striped skin, and superior ease and activity of motion. The moral qualities of both animals are much alike, being only marked by shades of difference. The tiger has the same manner of attacking his prey as the lion, by lying in ambush, and

springing upon it; indeed, this is the common practice of the whole cat tribe. The bound of the tiger is tremendous, and performed with astonishing speed, and to so great a distance, that few would credit it. It has been supposed by some writers, that the tiger derives his name from this circumstance, as in the Armenian language *tiger* signifies an arrow. Unlike the lion, however, the tiger does not usually slink sullenly back into his retreat if his first attack proves unsuccessful and he misses his aim, but pursues his victim with a speed and activity which is seldom baffled even by the fleetest animals.

In his domestic relations, the tiger is scarcely so amiable as the lion. He does not fulfil his duties so faithfully as husband and father; nor does the tigress herself at all times conduct herself like a fond and indulgent mother. The lion assists the lioness in rearing her young, while the tiger generally forsakes the female at that time. The lioness is never known to destroy her progeny, while the tigress frequently does so. It cannot, however, be said that the tigress is always cruel to her young, for, in general, where tigers have produced in Europe, they have shown much anxiety regarding them. We are informed by Captain Williamson in his "Oriental Field Sports," that he had two tiger cubs brought to him while quartered at Ramghur. They had been discovered, with two more, by some villagers, while their mother had been in quest of prey. The captain put them into a stable, where they were very noisy during night. A few nights having elapsed, their mother at length discovered where they were, came to relieve them, and replied to their cries by tremendous howlings, which induced their keeper to set the cubs at liberty, lest the dam should break in. She had carried them off to a jungle adjoining before morning.

There appears to be no greater difficulty in rendering the tiger tame than the lion; for we have seen numberless instances of their docility, in a state of confinement. Accounts of some of these will be found in the notes to Goldsmith. In India the faquirs or priests of Hindostan, who roam about as mendicants, are generally accompanied by tame tigers. In the summer of 1830, when Mr Wombwell was in Edinburgh, I happened one morning to visit his menagerie, when a young tiger, upwards of a year old, got out of his cage, but, in place of offering any injury

to those who were present, he squatted down like a frightened cat, close below his cage ; and quietly allowed the keepers to lift him into his apartment.

The tiger is a native of all the countries of southern Asia, which lie between the north of China, Chinese Tartary, and the Indies. He is entirely unknown in Africa. He abounds in Bengal, Tonquin, and Sumatra, and is to be found on most of the larger islands in that side of India. Of the ravages committed by tigers in these countries, some idea may be gained from the following narrative of a tiger excursion at Doongal, given in the East India Government Gazette.

“ There were five tigers killed by the party, besides one bear killed, and another wounded ; a wolf, a hyæna, a panther, a leopard, wild hogs killed every day, innumerable hares, partridges, floricans, &c. and some peacocks, wild goats, spotted deer and porcupines, and immense rock and cobra capella snakes. Among the occurrences during the excursion at Doongal, some are of a peculiar and pathetic nature. The first was a poor Bunnia, or dealer, of the village of Doongal, who had been to the city of Hydrabad, to collect some of his money, and was returning, after having gathered together a small sum, when on the way, a little beyond the cantonment of Secunderabad, he saw an armed Pæon seated, and apparently a traveller on the same way. After mutual inquiries, the Pæon told the Bunnia he was going to the same place ; and, as the Bunnia was glad to have somebody to accompany him, he gave him a part of his victuals ; and, on their way, they mutually related their histories. The Bunnia innocently mentioned the object of his visit to the city, and of his returning with the money he had collected : this immediately raised the avarice of the Pæon, who decided in his mind to kill the poor Bunnia in a proper place, and strip him of his money. They proceeded together, with this design in his mind, until they came to a place where the ravages of the tiger were notorious, and he prepared to kill the Bunnia ; and while he was struggling with him, and in the act to draw his sword to slay him, a tiger sprang upon the Pæon, and carried him off, leaving his shield and sword, which the Bunnia carried to Doongal, as trophies of retributive justice in his favour. The next was a Bunjarra and his wife, who were lying under a tree, when a tiger sprang up, and seized the woman by the head. The husband,

from mere impulse to save his wife, held her by the legs ; and a struggle ensued between the tiger pulling her by the head, and the man by the legs, until the issue, which could not be doubted, when the tiger carried off the woman. The man seemed to be rather partial to his wife, and devoted himself to revenge her death,—forsook his cattle and property,—resigned them to his brother, and offered his services to be of the tiger killing party, and strayed about the jungles, until he was heard of no more. A young handsome woman, who had dressed and ornamented herself for some particular occasion, happening to go a little beyond the precincts of a village, was seized by a tiger ; but, being rather stout, and too heavy to be clearly carried off, the limbs were torn from the waist, and the other part of the body was removed about a mile from the place, through a thick part of the jungle, where it was seen by the party fresh, with the viscera devoured. The sight caused many painful emotions. A camel driver, who had been just married, was bringing home his bride, when a tiger followed, and kept them in view a great part of the road, for an opportunity to seize one of them. The bride having occasion to alight, was immediately pounced upon by the ferocious beast, and he scampered away with her in his mouth. A shepherd was taken by a young tiger, which was followed by the mother, a large tigress, and devoured at the distance of two miles ; and a Bunnia, or dealer, from Bolarum, was seized returning from a fair. A woman, with an infant about a year old, was captured by a tiger ; and the infant was found by the Puttal, or head of the village, who brought it to his house. Some of the Company's elephants that were going for forage were chased by a tiger, which was kept off by a spearman ; and a comical chase of them was made up to Doongal, the elephants running before the tiger, until they entered the village. These are what occurred during the stay of the party at Doongal, besides many others that were daily reported, and do not require describing, from the uniformity of the occurrences. It is said the lives lost by these tigers amounted to about three hundred persons in one year, within the range of seven villages ; and the destruction of cattle, sheep, and goats, was said to be immense."

An individual case of destruction by a tiger happened to Mr Munro, only son of Sir Hector Munro, and is thus described by an eye-witness of that distressing event, dated from on board the

ship Shaw Ardasier, off Saugur Island, December 23d, 1792 :—
“ To describe the awful, horrid, and lamentable accident I have been an eye-witness of, is impossible. Yesterday morning, Captain George Downey, Lieutenant Pyefinch, poor Mr Munro, (of the Honourable East India Company’s service,) and myself, (Captain Consar,) went on shore, on Saugur Island, to shoot deer. We saw innumerable tracks of tigers and deer ; but still we were induced to pursue our sport ; and did so the whole day. About half past three, we sat down on the edge of the jungle, to eat some cold meat, sent to us from the ship, and had just commenced our meal, when Mr Pyefinch and a black servant told us, there was a fine deer within six yards of us. Captain Downey and I immediately jumped up, to take our guns ; mine was nearest, and I had but just laid hold of it, when I heard a roar like thunder, and saw an immense royal tiger spring on the unfortunate Munro, who was sitting down ; in a moment his head was in the beast’s mouth, and he rushed into the jungle with him, with as much ease as I could lift a kitten, tearing him through the thickest bushes and trees, every thing yielding to his monstrous strength. The agonies of horror, regret, and, I must say, fear, (for there were two tigers,) rushed on me at once ; the only effort I could make was to fire at him, though the poor youth was still in his mouth. I relied partly on Providence, partly on my own aim, and fired a musket. The tiger staggered, and seemed agitated, which I took notice of to my companions. Captain Downey then fired two shots, and I one more. We retired from the jungle, and, a few minutes after, Mr Munro came up to us, all over blood, and fell. We took him on our backs to the boat, and got every medical assistance for him, from the Valentine Indiaman, which lay at anchor near the island ; but in vain. He lived twenty-four hours, in the utmost torture ; his head and skull were all torn and broke to pieces, and he was also wounded, by the animal’s claws, all over his neck and shoulders ; but it was better to take him away, though irrecoverable, than leave him to be mangled and devoured. We have just read the funeral service over his body, and committed it to the deep. Mr Munro was an amiable and promising youth. I must observe, there was a large fire blazing close to us, composed of ten or a dozen whole trees. I made it myself, on purpose to keep the tigers off, as I had always heard it would. There were

eight or ten of the natives about us ; many shots had been fired at the place ; there was much noise and laughing at the time ; but this ferocious animal disregarded all. The human mind cannot form an idea of the scene : it turned my very soul within me. The beast was about four feet and a half high, and nine long. His head appeared as large as that of an ox ; his eyes darting fire, and his roar, when he first seized his prey, will never be out of my recollection. We had scarcely pushed our boat from that cursed shore, when the tigress made her appearance, raging, almost mad, and remained on the sand, as long as the distance would allow me to see her."

Lieutenant Collet, of the Bombay army, having heard that a very large tiger had destroyed seven inhabitants of an adjacent village, resolved, with another officer, to attempt the destruction of the monster. Having ordered seven elephants, they went in quest of the animal, which they found sleeping beneath a bush. Roused by the noise of the elephants, he made a furious charge upon them, and Lieutenant Collet's elephant received him on her shoulder, the other six having turned about, and run off, notwithstanding the exertions of their riders. The elephant shook off the tiger, and Lieutenant Collet having fired two balls at him, he fell ; but, again recovering himself, he made a spring at the lieutenant. Having missed his object, he seized the elephant by the hind leg, and, having received a kick from her, and another ball, he let go his hold, and fell a second time. Supposing that he was now disabled, Collet very rashly dismounted, with the resolution of killing him with his pistols ; but the tiger, who had only been crouching to take another spring, flew upon the lieutenant, and caught him in his mouth. The strength and intrepidity of the lieutenant, however, did not forsake him : he immediately fired his pistol into the tiger's body, and, finding that this had no effect, disengaged his arms with all his force, and, directing the other pistol to his heart, he at last destroyed him, after receiving twenty-five severe wounds.

A company, seated under the shade of some trees near the banks of a river in Bengal, were alarmed by the unexpected sight of a tiger, preparing for its fatal spring, when a lady, with almost unexampled presence of mind, unfurled a large umbrella in the animal's face, which, being confounded by so extraordinary

and sudden an appearance, instantly retired, and thus afforded them an opportunity of escaping from its terrible attack.

Tiger hunting is a favourite amusement in India, both with the natives and our countrymen. We extract the following lively account of a tiger hunt from the journal of the late excellent Bishop Heber :—

“At Kulleanpoor, the young Raja Gourman Singh mentioned in the course of conversation, that there was a tiger in an adjoining tope which had done a good deal of mischief ; that he should have gone after it himself had he not been ill, and had he not thought it would have been a fine diversion for Mr Boulderson, the collector of the district, and me. I told him I was no sportsman, but Mr Boulderson's eyes sparkled at the name of the tiger, and he expressed great anxiety to beat up his quarters in the afternoon. Under such circumstances, I did not like to deprive him of his sport, as he would not leave me by myself, and went, though with no intention of being more than a spectator. Mr Boulderson, however, advised me to load my pistols for the sake of defence, and lent me a very fine double-barrelled gun for the same purpose. We set out a little after three on our elephants, with a servant behind each howdah, carrying a large chatta, which, however, was almost needless. The Raja, in spite of his fever, made his appearance too, saying that he could not bear to be left behind. A number of people, on foot and horseback, attended from our own camp, and the neighbouring villages, and the same sort of interest and delight was evidently excited which might be produced in England by a great coursing party. The Raja was on a little female elephant, hardly bigger than the Durham ox, and almost as shaggy as a poodle. She was a native of the neighbouring wood, where they are generally, though not always, of a smaller size than those of Bengal and Chittagong. He sat in a low howdah,* with two or three guns ranged beside him, ready for action. Mr Boulderson had also a formidable apparatus of muskets and fowling pieces, projecting over his mohout's head. We rode about two miles across a plain covered with long jungly grass, which very much put me in mind of the country near the Cuban. Quails and wild-fowl rose in

* The howdah is a seat somewhat resembling the body of a gig, and is fastened by girths to the back of the elephant.

great numbers, and beautiful antelopes were seen scudding away in all directions."

The Bishop then describes the beating of the jungle, the rushing out of two curious animals of the elk kind, called the 'mohr,' and the growing anxiety of all the people engaged in the hunt. He then proceeds thus :—

"At last the elephants all drew up their trunks into the air, began to roar, and stamp violently with their fore-feet. The Raja's little elephant turned short round, and in spite of all her mohout (her driver) could say or do, took up her post, to the Raja's great annoyance, close in the rear of Mr Boulderson. The other three (for one of my baggage elephants had come out too, the mohout, though unarmed, not caring to miss the show) went on slowly, but boldly, with their trunks raised, their ears expanded, and their sagacious little eyes bent intently forward. 'We are close upon him,' said Mr Boulderson, 'fire where you see the long grass shake, if he rises before you.' Just at that moment my elephant stamped again violently. 'There, there,' cried the mohout, 'I saw his head.' A short roar, or rather loud growl followed, and I saw immediately before my elephant's head the motion of some large animal stealing through the grass. I fired as directed, and a moment after, seeing the motion still more plainly, fired the second barrel. Another short growl followed; the motion was immediately quickened, and was soon lost in the more distant jungle. Mr Boulderson said, 'I should not wonder if you hit him that last time; at any rate we shall drive him out of the cover, and then I will take care of him.' In fact at that moment the crowd of horse and foot spectators at the jungle side, began to run off in all directions. We went on to the place, but found it was a false alarm; and, in fact, we had seen all we were to see of him, and went twice more through the jungle in vain.

"I asked Mr Boulderson in our return, whether tiger-hunting was generally of this kind, which I could not help comparing to that chase of bubbles which enables us in England to pursue an otter. In a jungle, he answered, it must always be pretty much the same, inasmuch as, except under very peculiar circumstances, or when a tiger felt himself severely wounded, and was roused to revenge by despair, his aim was to remain concealed, and to make off as quietly as possible. It was after he had broken

cover, or when he found himself in a situation so as to be fairly at bay, that the serious part of the sport began, in which case he attacked his enemies boldly, and almost died fighting. He added, that the lion, though not so large or swift an animal as the tiger, was generally stronger and more courageous. Those which have been killed in India, instead of running away when pursued through a jungle, seldom seem to think its cover necessary at all. When they see their enemies approaching, they spring out to meet them, open-mouthed, in the plain, like the boldest of all animals, a mastiff dog. They are thus generally shot with very little trouble; but if they are missed, or only slightly wounded, they are truly formidable enemies. Though not swift, they leap with vast strength and violence; and their large heads, immense paws, and the great weight of their body forwards, often enable them to spring on the head of the largest elephants, and fairly pull them down to the ground, riders and all. When a tiger springs on an elephant, the latter is generally able to shake him off under his feet, and then woe be to him. The elephant either kneels on him and crushes him at once, or gives him a kick which breaks half his ribs, and sends him flying perhaps twenty paces. The elephants, however, are often dreadfully torn; and a large old tiger sometimes clings too fast to be thus dealt with. In this case it often happens that the elephant himself falls, from pain, or from the hope of rolling on his enemy; and the people on his back are in very considerable danger both from friends and foes; for Mr Boulderson said the scratch of a tiger was sometimes venomous, as that of a cat is said to be. But this did not often happen; and, in general, persons wounded by his teeth or claws, if not killed outright, recovered easily enough.'

Of the muscular powers of the tiger, the following furnishes a notable illustration:—A buffalo, belonging to a peasant in the East Indies, having fallen into a quagmire, the man was himself unable to extricate it, and went to call the assistance of his neighbours. Meanwhile, a large tiger, coming to the spot, seized upon the buffalo, and dragged him out. When the men came to the place, they saw the tiger, with the buffalo thrown over his shoulder, in the act of retiring with him towards the jungle. No sooner, however, did he observe the men, than he let fall the dead animal, and precipitately escaped. On

a tiger and tigress and a lion in the Tower of London. An account of it will be found in Goldsmith.

Some years ago, a tame tiger was led about Madras by some of the natives, without any other restraint than a muzzle, and a small chain about his neck. The former was only rendered necessary, from the particular manner in which they had trained the animal. They lived by exhibiting, to the curious, the tiger's method of seizing his prey. The manner in which they showed this, was by fastening a sheep with a cord to a stake driven into the ground. The tiger was no sooner brought in sight of it, than he crouched, and moved along the ground on his belly, slowly and cautiously, till he came within the limits of a bound, when he sprung upon it with the rapidity of an arrow, and struck it dead in an instant. He then seized it by the throat with his teeth, rolled on his back, supporting the sheep on his breast, and drawing his hind legs up near the throat of the animal, fixed his claws firmly into it, and then forcing his legs backwards, tore it open in an instant. This tiger would yield up the carcass, on a small piece of meat being thrown down to it.

THE JAGUAR AND PUMA.

THE most formidable quadrupeds of the new world, are the Jaguar or American tiger, and Puma or American lion. They are both particularly described in the notes to the edition of Goldsmith. The Jaguar inhabits the swampy forests of South America from Paraguay almost to the Isthmus of Darien. Although inferior in grace and elasticity of motion to the tiger of the old world, he is scarcely so in strength and ferocity. His onset is always made from behind, and in the same treacherous manner as that of all of the cat tribe: of a herd of animals or a band of men passing within his reach, he uniformly singles out the last as the object of his fatal bound. He springs upon the neck of his victim, and by a sudden jerk twists its head, so as to deprive it instantaneously of life and motion. Horses, oxen, and sheep are his favourite food; but, when pressed by hunger, he will attack man. D'Azara mentions, that during his residence at Paraguay, six men were destroyed by these animals; two of

whom were even seized and carried off in the night, while sitting by a blazing fire.

The jaguar is an excellent swimmer, and is said to attack and overcome the alligator, of whose flesh he is very fond.

As an instance of the physical powers of the jaguar, D'Azara mentions, that having heard of a horse being attacked by one, he hastened to the spot, where he found him dead, and part of the breast already devoured ; but the jaguar had fled, on seeing him approach. He got the body of the horse dragged within musket shot of a large tree, where he intended to pass the night, in hopes of shooting the jaguar, which he had no doubt would return to fetch its prey. He went away to prepare himself for the adventure, leaving a man concealed to watch the carcass. He had not been long gone before the jaguar made his appearance, from the opposite side of a broad and deep river, about sixty paces from the banks on which the horse lay. He approached, and, seizing it in his teeth, pulled it to the river, and swam across with his prey ; dragged it out of the water, and drew it into a neighbouring wood.

M. Sonnini mentions, that in a journey through the extensive forests of Guiana, he, and the party by whom he was accompanied, were much annoyed by one of these animals, who continued to follow them in their route, for two successive nights ; and who evaded every effort, on their part, to destroy him. They kept up very large fires to scare him, and he, at length, took his departure, after uttering a horrid howl of disappointment.

The powers of the jaguar in climbing lofty trees, is very remarkable. Some of the stumps of the mighty trees which compose the extensive forests of South America, are free from branches, to the distance of fifty feet from the ground, and the bark of some is nearly as smooth as glass. M. Sonnini observed, while travelling through that country, the marks of the claws of the jaguar at the top of some of the highest trees ; and although it was quite apparent that the animal had slipped more than once, in his attempt to gain the branches, which was quite perceptible, from the deep ruts his claws had made in the bark, yet he had ultimately gained his object, no doubt in pursuit of some favourite prey.

The PUMA, Cougar, or, as he was once called, the American lion, is smaller than the Jaguar, and resembles the liou of the old

world, chiefly in the uniformity of his general colour, which is brownish red. The belly is white, or pale cream colour. It has no mane, like the African and Asiatic lions.

The puma lives in high and mountainous tracts, in the warmer parts of the United States, and is common in the open plains of South America. He feeds on all domestic, and also most wild animals which he is capable of overcoming. Although powerful, he is cowardly, and is little dreaded either by man or the larger animals. Molina and D'Azara even assert, that the puma will not attack man; but an incident related to Major Smith by Mr Skudden, proves the contrary:—Two hunters having gone in quest of game to the Katskill mountains, province of New York, each armed with a gun, and accompanied by a dog, they agreed to go in contrary directions round the base of the hill, which formed one of the points of that chain of mountains; and it was settled that, if either discharged his piece, the other should hasten to the spot whence the report proceeded as speedily as possible, to join in the pursuit of whatever game might fall to their lot. They had not been long asunder, when the one heard the other fire, and, agreeably to promise, hastened to join his companion. He looked for him in every direction; but to no purpose. At length, however, he came upon the dog of his friend, dead, and dreadfully lacerated. Convinced by this, that the animal his comrade had shot at, was ferocious and formidable, he felt much alarm for his fate, and sought after him with great anxiety. He had not proceeded many yards from the spot where the dog lay prostrate, when his attention was arrested by the ferocious growl of some wild animal. On raising his eyes to the spot whence the sound proceeded, he discovered a large puma couching on the branch of a tree, and under him the body of his friend. The animal's eyes glared at him, and he appeared hesitating whether he should descend, and make an attack on the survivor also, or relinquish his prey, and decamp. The hunter, aware of the celerity of the puma's movements, knew that there was no time for reflection, levelled his piece, and mortally wounded the animal, when it and the body of the man fell together from the tree. His dog then attacked the wounded puma, but a single blow from its paw laid it prostrate. In this state of things, finding his comrade was dead, and knowing it was dangerous to approach the wounded animal, he went in search of assistance, and,

on returning to the spot, he found the puma, his friend, and the two dogs, all lying dead. The skin of this puma is preserved in the New York museum, in remembrance of the story.

Another and less tragical encounter with a puma is thus described by Captain Head, in his *Journey across the Pampas* :—
“ The fear which all wild animals in America have of man is very singularly seen in the Pampas. I often rode towards the ostriches and zamas, crouching under the opposite side of my horse's neck ; but I always found that, although they would allow my loose horse to approach them, they, even when young, ran from me, though little of my figure was visible ; and when I saw them all enjoying themselves in such full liberty, it was at first not pleasing to observe that one's appearance was every where a signal to them that they should fly from their enemy. Yet it is by this fear ‘ that man hath dominion over the beasts of the field,’ and there is no animal in South America that does not acknowledge this instinctive feeling. As a singular proof of the above, and of the difference between the wild beasts of America and of the old world, I will venture to relate a circumstance which a man sincerely assured me had happened to him in South America :—He was trying to shoot some wild ducks, and, in order to approach them unperceived, he put the corner of his poncho (which is a sort of long narrow blanket) over his head, and crawling along the ground upon his hands and knees, the poncho not only covered his body, but trailed along the ground behind him. As he was thus creeping by a large bush of reeds, he heard a loud, sudden noise, between a bark and a roar : he felt something heavy strike his feet, and, instantly jumping up, he saw, to his astonishment, a large puma actually standing on his poncho ; and, perhaps, the animal was equally astonished to find himself in the immediate presence of so athletic a man. The man told me he was unwilling to fire, as his gun was loaded with very small shot ; and he therefore remained motionless, the puma standing on his poncho for many seconds ; at last the creature turned his head, and walking very slowly away about ten yards, he stopped, and turned again : the man still maintained his ground, upon which the puma tacitly acknowledged his supremacy, and walked off.”

A puma having been taken in America, was ordered to be

shot, immediately after, while taking some food. The first ball penetrated his body, which merely had the effect of making him utter a loud growl ; after which, he ate his food with the most savage voracity and keenness, swallowing along with it quantities of his own blood, till he sunk under exhaustion.

The puma in a state of captivity, loses all its natural fierceness. Buffon mentions one, that would allow himself to be patted by the hand, and he would even permit children to mount on his back, without any attempt to scratch or bite them. There was one kept alive for some time in the College of Edinburgh, which was very tame, although not completely domesticated. Mr Kean, the celebrated actor, also had a tame puma, which died some time ago. This animal followed him, without exhibiting any proofs of wildness.

The following story shows the gratitude and attachment of which a puma is capable :—A dreadful famine raged at Buénos Ayres, during the government of Don Diego de Mendoza, in Paraguay ; yet Don Diego, afraid to give the Indians a habit of spilling Spanish blood, forbade the inhabitants, on pain of death, to go into the fields, in search of relief, placing soldiers at all the outlets to the country, with orders to fire upon those who should attempt to transgress his orders. A woman, however, called Maldonata, was artful enough to elude the vigilance of the guards, and escape. After wandering about the country for a long time, she sought shelter in a cavern ; but she had scarcely entered it, when she became dreadfully alarmed, by espying a female puma. She was, however, soon quieted, by the animal approaching and caressing her. The poor brute was in a state, in which assistance is of the most service, and when rendered, is gratefully remembered, even by the brute creation. Of this, the puma gave her benefactress the most sensible proofs. She never returned from searching after her daily subsistence, without laying a portion of it at the feet of Maldonata, until, her whelps being strong enough to walk abroad, she took them with her, and never returned.

Some time after, Maldonata fell into the hands of the Spaniards ; and, being brought back to Buenos Ayres, was conducted before Don Francis Ruez de Galen, who then commanded there. She was charged with having left the city, contrary to orders. Galen was a man of a cruel and tyrannical disposition,

and condemned the unfortunate woman to a death which none but the most cruel tyrant could have devised. He ordered some soldiers to take her into the country, and leave her tied to a tree, either to perish with hunger, or to be torn to pieces by wild beasts, as he expected. Two days after, he sent the same soldiers to see what had been her fate, when, to their great surprise, they found her alive and unhurt, though surrounded by pumas and jaguars, while a female puma, at her feet kept them at bay. As soon as the puma saw the soldiers, she retired to some distance; and they unbound Maldonata, who related to them the history of this puma, whom she knew to be the same she had formerly assisted in the cavern. On the soldiers taking Maldonata away, the lioness approached, and fawned upon her, as if unwilling to part. The soldiers reported what they had seen to their commander, who could not but pardon a woman who had been so singularly protected, without the danger of appearing more inhuman than pumas themselves.

THE PANTHER AND LEOPARD.

NATURALISTS are not very well agreed as to the distinctions between the panther and leopard. Both animals are spotted in the skin, and not striped, as the tiger is; and the panther is generally allowed to be larger than the leopard, and his range to be confined to Africa, whereas the leopard is widely extended over Asia as well as Africa. The habits of both are nearly allied to those of the tiger, being only modified by a more limited command of physical force.

The following very interesting notices of a panther belonging to Mr Bowdich, the African traveller, show how capable of domestication even the most ferocious animal is:—"This panther and another were found, when very young, in the forest, apparently deserted by their mother. They were taken to the king of Ashantee, in whose palace they lived several weeks, when my hero, being much larger than his companion, suffocated him in a fit of romping, and was then sent to Mr Hutchison, the resident left by Mr Bowdich at Coomassie. This gentle-

man, observing that the animal was very docile, took pains to tame him, and in a great measure succeeded. When he was about a year old, Mr Hutchison returned to Cape Coast, and had him led through the country by a chain, occasionally letting him loose when eating was going forward, when he would sit by his master's side, and receive his share with comparative gentleness. Once or twice he purloined a fowl, but easily gave it up to Mr Hutchison, on being allowed a portion of something else. The day of his arrival he was placed in a small court, leading to the private rooms of the governor, and, after dinner, was led by a thin cord into the room, where he received our salutations with some degree of roughness, but with perfect good humour. On the least encouragement, he laid his paws upon our shoulders, rubbed his head upon us, and, his teeth and claws having been filed, there was no danger of tearing our clothes. He was kept in the above court for a week or two, and evinced no ferocity, except when one of the servants tried to pull his food from him : he then caught the offender by the leg, and tore out a piece of flesh, but he never seemed to owe him any ill will afterwards. He one morning broke his cord ; and, the cry being given, the castle gates were shut, and a chase commenced. After leading his pursuers two or three times round the ramparts, and knocking over a few children, by bouncing against them, he suffered himself to be caught, and led quietly back to his quarters, under one of the guns of the fortress.

“ By degrees, the fear of him subsided, and, orders having been given to the sentinels to prevent his escape through the gates, he was left at liberty to go where he pleased, and a boy was appointed to prevent him from intruding into the apartments of the officers. His keeper, however, generally passed his watch in sleeping ; and Sai, as the panther was called, after the royal giver, roamed at large. On one occasion he found his servant sitting on the step of the door, upright, but fast asleep, when he lifted his paw, gave him a blow on the side of the head, which laid him flat, and then stood wagging his tail, as if enjoying the mischief he had committed. He became exceedingly attached to the governor, and followed him every where like a dog. His favourite station was at a window of the sitting-room, which overlooked the whole town ; there standing on his hind legs, his fore paws resting on the ledge of

the window, and his chin laid between them, he appeared to amuse himself with what was passing beneath. The children also stood with him at the window ; and one day, finding his presence an encumbrance, and that they could not get their chairs close, they used their united efforts to pull him down by the tail. He one morning missed the governor, who was settling a dispute in the hall, and who, being surrounded by black people, was hidden from the view of his favourite. Sai wandered, with a dejected look, to various parts of the fortress in search of him ; and, while absent on this errand, the audience ceased, the governor returned to his private rooms, and seated himself at a table to write. Presently he heard a heavy step coming up the stairs, and, raising his eyes to the open door, he beheld Sai. At that moment he gave himself up for lost, for Sai immediately sprang from the door on to his neck. Instead, however, of devouring him, he laid his head close to the governor's, rubbed his cheek upon his shoulder, wagged his tail, and tried to evince his happiness. Occasionally, however, the panther caused a little alarm to the other inmates of the castle, and the poor woman who swept the floors, or, to speak technically, the *pra-pra* woman, was made ill by her fright. She was one day sweeping the boards of the great hall with a short broom, and in an attitude nearly approaching to all-fours, and Sai, who was hidden under one of the sofas, suddenly leapt upon her back, where he stood in triumph. She screamed so violently as to summon the other servants, but they, seeing the panther, as they thought, in the act of swallowing her, one and all scampered off as quickly as possible ; nor was she released till the governor, who heard the noise, came to her assistance. Strangers were naturally uncomfortable when they saw so powerful a beast at perfect liberty, and many were the ridiculous scenes which took place, they not liking to own their alarm, yet perfectly unable to retain their composure in his presence.

“ This interesting animal was well fed twice every day, but never given any thing with life in it. He stood about two feet high, and was of a dark yellow colour, thickly spotted with black rosettes ; and, from the good feeding and the care taken to clean him, his skin shone like silk. The expression of his countenance was very animated and good-tempered, and he was particularly gentle to children ; he would lie down on the mats by their side

when they slept ; and even the infant shared his caresses, and remained unhurt. During the period of his residence at Cape Coast, I was much occupied by making arrangements for my departure from Africa, but generally visited my future companion every day, and we, in consequence, became great friends before we sailed. He was conveyed on board the vessel in a large wooden cage, thickly barred in the front with iron. Even this confinement was not deemed a sufficient protection by the canoe men,* who were so alarmed at taking him from the shore to the vessel, that, in their confusion, they dropped cage and all into the sea. For a few minutes I gave up my poor panther as lost, but some sailors jumped into a boat belonging to the vessel, and dragged him out in safety. The beast himself seemed completely subdued by his ducking, and, as no one dared to open his cage to dry it, he rolled himself up in one corner, nor roused himself till after an interval of some days, when he recognised my voice. When I first spoke, he raised his head, held it on one side, then on the other, to listen ; and when I came fully into his view, he jumped on his legs, and appeared frantic ; he rolled himself over and over, he howled, he opened his enormous jaws and cried, and seemed as if he would have torn his cage to pieces. However, as his violence subsided, he contented himself with thrusting his paws and nose through the bars of the cage, to receive my caresses. I suspect that he had suffered from sea sickness, as he had apparently loathed all food ; but, after this period, he ate every thing that was given to him.

“The greatest treat I could bestow upon my favourite was lavender water. Mr Hutchison had told me that, on the way from Ashantee, he drew a scented handkerchief from his pocket, which was immediately seized on by the panther, who reduced it to atoms ; nor could he venture to open a bottle of perfume when the animal was near, he was so eager to enjoy it. I indulged him twice a-week, by making a cup of stiff paper, pouring a little lavender water into it, and giving it to him through the bars of his cage : he would drag it to him with great eagerness, roll himself over it, nor rest till the smell had evaporated. By this I taught him to put out his paws without showing his nails,

* The panther, in these countries, is a sacred or Fetish animal ; and not only a heavy fine is extorted from those who kill one, but the Fetish is supposed to revenge his death by cursing the offender.

always refusing the lavender water till he had drawn them back again ; and, in a short time, he never, on any occasion, protruded his claws when offering me his paw.

“ We lay eight weeks in the river Gaboon, where he had plenty of excellent food, but was never suffered to leave his cage, on account of the deck being always filled with black strangers, to whom he had a very decided aversion, although he was perfectly reconciled to white people. His indignation, however, was constantly excited by the pigs, when they were suffered to run past his cage ; and the sight of one of the monkeys put him in complete fury. While at anchor in the before mentioned river, an orang-outang (*Símia Sátyrus*) was brought for sale, and lived three days on board ; and I shall never forget the uncontrollable rage of the one, or the agony of the other, at this meeting. The orang was about three feet high, and very powerful in proportion to his size ; so that when he fled, with extraordinary rapidity, from the panther to the farther end of the deck, neither men nor things remained upright when they opposed his progress : there he took refuge in a sail, and, although generally obedient to the voice of his master, force was necessary to make him quit the shelter of its folds. As to the panther, his back rose in an arch, his tail was elevated and perfectly stiff, his eyes flashed, and, as he howled, he showed his huge teeth ; then, as if forgetting the bars before him, he tried to spring on the orang, to tear him to atoms. It was long before he recovered his tranquillity ; day and night he appeared to be on the listen ; and the approach of a large monkey we had on board, or the intrusion of a black man, brought a return of his agitation.

“ We, at length, sailed for England, with an ample supply of provisions ; but, unhappily, we were boarded by pirates during the voyage, and nearly reduced to starvation. My panther must have perished, had it not been for a collection of more than three hundred parrots with which we sailed from the river, and which died very fast while we were in the north-west trades. Sai’s allowance was one per diem, but this was so scanty a pittance that he became ravenous, and had not patience to pick all the feathers off before he commenced his meal. The consequence was, that he became very ill, and refused even this small quantity of food. Those around tried to persuade me that he suffered from the colder climate ; but his dry nose and paws convinced

me that he was feverish, and I had him taken out of his cage ; when, instead of jumping about and enjoying his liberty, he lay down, and rested his head upon my feet. I then made him three pills, each containing two grains of calomel. The boy who had the charge of him, and who was much attached to him, held his jaws open, and I pushed the medicine down his throat. Early the next morning I went to visit my patient, and found his guard sleeping in the cage with him ; and having administered a farther dose to the invalid, I had the satisfaction of seeing him perfectly cured by the evening. On the arrival of the vessel in the London Docks, Sai was taken ashore, and presented to the Duchess of York, who placed him in Exeter Change, to be taken care of, till she herself went to Oatlands. He remained there for some weeks, and was suffered to roam about the greater part of the day without any restraint. On the morning previous to the Duchess's departure from town, she went to visit her new pet, played with him, and admired his healthy appearance and gentle deportment. In the evening, when her Royal Highness's coachman went to take him away, he was dead, in consequence of an inflammation on his lungs."

Although smaller than the panther and tiger, the *leopard* has an advantage over both, in the extreme pliability of his spine, which gives him a degree of velocity and agility surpassed by no other animal. He climbs trees with astonishing rapidity, so that few animals are safe from his ravages. Man alone seems to be respected by him ; but, if pressed hard in the pursuit by the hunter, he will turn upon him, and it requires both skill and prowess to guard against the fury of his attacks.

The following particulars of an encounter with one of these animals, are from the pen of a gentleman who witnessed it :—" I was at Jaffna, at the northern extremity of the Island of Ceylon, in the beginning of the year 1819, when, one morning, my servant called me an hour or two before my usual time, with 'Master, master ! people sent for master's dogs—tiger in the town !' Now, my dogs chanced to be some very degenerate specimens of a fine species, called the Poligar dog, which I should designate as a sort of wiry haired greyhound, without scent. I kept them to hunt jackals ; but tigers are very different things. By the way, there are no real tigers in Ceylon ; but leopards and panthers are always called so, and by ourselves as well as

by the natives. This turned out to be a panther. My gun chanced not to be put together; and, while my servant was doing it, the collector and two medical men, who had recently arrived, in consequence of the cholera morbus having just then reached Ceylon from the Continent, came to my door, the former armed with a fowling-piece, and the two latter with remarkably blunt hog-spears. They insisted upon setting off, without waiting for my gun,—a proceeding not much to my taste. The tiger (I must continue to call him so) had taken refuge in a hut, the roof of which, like those of Ceylon huts in general, spread to the ground like an umbrella; the only aperture into it was a small door, about four feet high. The collector wanted to get the tiger out at once. I begged to wait for my gun; but no—the fowling-piece, (loaded with ball, of course,) and the two hog-spears, were quite enough. I got a hedge-stake, and awaited my fate, from very shame. At this moment, to my great delight, there arrived from the fort an English officer, two artillery-men, and a Malay captain; and a pretty figure we should have cut without them, as the event will show. I was now quite ready to attack, and my gun came a minute afterwards. The whole scene which follows took place within an enclosure, about twenty feet square, formed, on three sides, by a strong fence of palmyra leaves, and on the fourth by the hut. At the door of this, the two artillery-men planted themselves: and the Malay captain got at the top, to frighten the tiger out, by worrying it—an easy operation, as the huts there are covered with cocoa-nut leaves. One of the artillerymen wanted to go in to the tiger, but we would not suffer it. At last the beast sprang. This man received him on his bayonet, which he thrust apparently down his throat, firing his piece at the same moment. The bayonet broke off short, leaving less than three inches on the musket; the rest remained in the animal, but was invisible to us. The shot probably went through his cheek, for it certainly did not seriously injure him, as he instantly rose upon his legs, with a loud roar, and placed his paws upon the soldier's breast. At this moment, the animal appeared to me to about reach the centre of the man's face; but I had scarcely time to observe this, when the tiger, stooping his head, seized the soldier's arm in his mouth, turned him half round staggering, threw him over on his back, and fell upon him. Our dread now was, that, if we fired upon the tiger, we might kill

the man. For a moment, there was a pause, when his comrade attacked the beast exactly in the same manner as the gallant fellow himself had done. He struck his bayonet into his head; the tiger rose at him—he fired; and this time the ball took effect, and in the head. The animal staggered backwards, and we all poured in our fire. He still kicked and writhed; when the gentlemen with the hog-spears advanced, and fixed him, while he was finished by some natives beating him on the head with hedge-stakes. The brave artilleryman was, after all, but slightly hurt: He claimed the skin, which was very cheerfully given to him. There was, however, a cry among the natives, that the head should be cut off: it was; and, in so doing, the knife came directly across the bayonet. The animal measured little less than four feet, from the root of the tail to the muzzle. There was no tradition of a tiger having been in Jaffna before. Indeed, this one must have either come a distance of almost twenty miles, or have swam across an arm of the sea nearly two in breadth; for Jaffna stands on a peninsula, on which there is no jungle of any magnitude.”

We have an account of another adventure with a leopard, which took place in Southern Africa in 1822. Two boors returning from hunting the hartebeest, (the *antelope bubalis*,) fell in with a leopard in a mountain ravine, and immediately gave chase to him. The animal at first endeavoured to escape, by clambering up a precipice, but, being hotly pressed, and slightly wounded by a musket-ball, he turned upon his pursuers, with that frantic ferocity, which, on such emergencies, he frequently displays, and, springing upon the man who had fired at him, tore him from his horse to the ground, biting him at the same time very severely on the shoulder, and tearing his face and arms with his claws. The other hunter, seeing the danger of his comrade, sprung from his horse, and attempted to shoot the leopard through the head; but, whether owing to trepidation, or the fear of wounding his friend, or the sudden motions of the animal, he unfortunately missed his aim. The leopard, abandoning his prostrate enemy, darted with redoubled fury upon this second antagonist; and so fierce and sudden was his onset, that before the boor could stab him with his hunting-knife, he struck him in the eyes with his claws, and had torn the scalp over his forehead. In this frightful condition, the hunter grappled with the raging beast, and,

struggling for life, they rolled together down a steep declivity. All this passed so rapidly that the other man had scarcely time to recover from the confusion into which his feline foe had thrown him, to seize his gun and rush forward to aid his comrade, when he beheld them rolling together down the steep bank, in mortal conflict. In a few moments he was at the bottom with them, but too late to save the life of his friend, who had so gallantly defended him. The leopard had torn open the jugular vein, and so dreadfully mangled the throat of the unfortunate man, that his death was inevitable; and his comrade had only the melancholy satisfaction of completing the destruction of the savage beast, which was already much exhausted by several deep wounds in the breast, from the desperate knife of the expiring huntsman.

In a captive state, the leopard is as domesticated as any of the cat tribe. There are at present in the Tower a pair of these animals, from Asia, confined in the same den. The female is very tame, and gentle in her temper, and will allow herself to be patted and caressed by the keepers, while she licks their hands, and paws. She, however, has one peculiarity, that she cannot bear many of the appendages which visitors bring with them to the menagerie. She has a particular predilection for the destruction of parasols, umbrellas, muffs, and hats, which she frequently contrives to lay hold of before the unwary spectator can prevent it, and tears them to pieces in an instant. She has been five years in the Tower, during which time she has seized and destroyed several hundreds of these articles, as well as other parts of ladies' dress. While this creature is in a playful mood, she bounds about her cell with the quickness of thought, touching the four sides of it nearly at one and the same instant. So rapid are her motions, that she can scarcely be followed by the eye; and she will even skim along the ceiling of her apartment with the same amazing rapidity, evincing great pliability of form and wonderful muscular powers. The male has been about two years in the Tower, and is only beginning to suffer familiarities; but he seems jealous of the slightest approach. He is larger than the female, the colour of his skin more highly toned, and the spotting more intensely black. *Of the Hunting Leopard*, a variety of the Leopard, a particular account will be found in the notes to Goldsmith.

The other animals of the cat kind are numerous :—the Ounce, the Ocelot, the Lynx, the Serval, the Margay, &c. These are all more distinguished by differences of size than of habits or disposition.

The OUNCE is smaller than the leopard, and more gentle in its manners. It is to be found in different parts of Asia and Africa, and is frequently trained to the chase like the hunting leopard.

The OCELOT is the most beautiful of its tribe: the whole body and legs are covered with longitudinal chainlike stripes, broken into patches of some inches; black at the margins, and pale inside, with an open space in the centre, of the ordinary ground colour of the fur; on the neck and head these black lines have no central opening. It is a native of South America, where it frequents the depths of the forest, living upon deer and birds. It seldom attacks man, although instances have occurred of its doing so. When hunted, and overtaken, it defends itself with great obstinacy. Its natural disposition, however, is timid and rather cowardly. The ocelot seems less susceptible of domestication than the other members of the cat tribe. In confinement it is in a state of perpetual motion, and will not submit to the caresses of its keeper. A male and female ocelot were brought to France about twenty years ago, which had been taken when very young. At the age of three months, they became so strong and fierce, as to kill a bitch, by which they were nursed. When a live cat was thrown to them, they immediately pounced upon it, sucked its blood, but left the flesh untouched. The male seemed to have a great superiority over the female, as he never allowed her to partake of a meal till he was satisfied. D'Azara mentions an ocelot, which was so completely domesticated, as to be left at perfect liberty; it seemed strongly attached to its master, and never attempted to escape.

The LYNX of the ancients was the Caracal, of which an account will be found in the notes to Goldsmith. The modern lynx is thus described. Its length is about two feet six inches, and its height sixteen inches. The ears are erect, and have a long pencil of black hairs at their tip. The fur is long, thick, and soft, of a grayish ash colour on the upper parts, with a reddish tinge, marked with dusky spots. The legs and feet are thick, short, and strong, covered with long fur; and the tail

black at its extremity. The eyes are of a pale yellow, a colour not favourable to powerful vision, yet the creature is proverbial for its piercing sight. There was one of these lately in the Zoological Gardens of London, which had not any strong expression, or brilliancy of the eye; so that, in all probability, this is only one of the remains of ancient fable. The fur of the lynx is valuable, on account of its great softness and warmth, and is in consequence an extensive article of commerce. It inhabits the northern parts of Europe, Asia, and America; and prefers cold or temperate climates, differing in this respect from most of the cat tribe. Lynxes conceal themselves in thick forests, prey upon stags, roebucks, hares, and other animals, and climb with facility up the highest trees after birds and squirrels. The general disposition of this animal is like that of his congeners, and, like them, he may be tamed if properly treated.

The SERVAL is somewhat larger than the ordinary wild cat. Its general colour is a pale fulvous yellow. It inhabits the mountainous parts of India, and is called by the natives of Malabar, the *Marapute*. It resides on trees, where it makes a bed, and breeds its young. It seldom appears on the ground, living principally on birds, squirrels, and small animals; it is extremely agile, and leaps, with great rapidity, from one branch to another. The serval never assaults man, but rather endeavours to avoid him; if, however, it is compelled to attack, it darts furiously on its antagonist, and bites and tears, like the rest of the cat kind.

The MARGAY is about the size of the wild cat, and resembles it very much in disposition. It is subject to considerable variety of colour. It is common in Brazil and Guiana, and various other parts of South America; seeming to prefer a warm to a temperate climate.

THE DOG KIND.

THE dog kind is more closely associated with the class which we have been just considering, than with any other species of animals. Both kinds are carnivorous, both capable of encountering or pursuing very formidable animals, alike in their natural state, voracious and cruel ; and both have, in one species only out of their numerous tribes, been subjected to domestication. But while they resemble each other in strength, ferocity, and an unrelenting disposition to prey on other animals, and thus may be associated in regard to the objects of their powers, they are very strikingly distinguished in respect of the powers with which they are furnished and their manner of using them. The cat kind rather waits for than pursues its prey, and draws its intimations from the sense of sight only ; the dog kind is gifted with a keen sense of smell, and can follow the tract of its prey for a great distance,—the one springs on its prey, the other runs it down,—the one trusts much to the strength of its paw, and the firmness of the grasp of its claws, the other never uses its feet, and, unable to compress its claws in the assault of an enemy, employs only its powerful jaws. Among the cat kind there is greater difference in size and less in form. With the exception of some of the smallest species of the dog, which are the result of domestication, the size of the dog kind is confined within a narrower range, while in appearance and the expression of countenance, the different kinds are very strikingly marked. The cat species resemble one another in disposition, and even the domestic cat retains many of its natural tendencies,—the dog kind varies from the most perfectly docile of all the creatures, associated in the plea-

tures and employments of life, to the most savage and untameable monster that traverses the desert. Of all the species now under consideration, the dog is the only one that is useful or obedient to man, but it possesses enough of these qualities to render the whole tribe interesting.

THE DOG.

Of all animals, the dog presents the appearance of the most thorough submission to the will and subservience to the use of man. If we look at the individual, we perceive it attached to a person whom it acknowledges as master, with whom it has formed a very humble alliance, and whose interest it considers its own. It answers to its name, is willing to follow its master wherever he goes, and exerts all its energies in any service to which he may command it, and that without any constraint except what arises from its own disposition. A more perfect image of obedience and subservience cannot be conceived. If, on the other hand, we survey the species, we find it in every variety of size, and shape, and disposition, according to the various services of which it is capable. The division of labour is almost as complete among the different species of the dog as among men themselves. It, like its masters, gives up the exercise of one faculty that it may bring another to a greater perfection.

The general characteristic of the external appearance of an animal so changed and varied by its employments it is somewhat difficult to determine. It is graceful in the greyhound—majestic in the stag-hound—expressive of honesty and firmness in the mastiff. The actions and gestures of some of the species are expressive of much intelligence, while, on the other hand, many of the kinds have been so reduced by the treatment to which they are subjected by domestication, as to have lost what calls for admiration in the nobler breeds. Most of the species are formidable, and capable of giving a very severe bite, and though submissive to its master, very readily irritated against those whom it judges to be interfering with his property. The charge of an impudent look has probably from this circumstance been from the earliest ages advanced against the dog; the term dog-faced

Homer represents as being applied to Agamemnon by Achilles, as denoting a countenance of the most insolent audacity. It must be allowed that the dog often stares people in the face, that its look is steady sometimes forward, and that to strangers it turns a suspicious and inquisitive eye, yet still its countenance is capable of expressing gratitude, affection, and the utmost kindness, and its gaze is often that of intelligence or inquiry.

The dog, in its wild state, differs little in its habits from those of the same order of quadrupeds; it resembles the wolf rather than the fox, hunts in troops, and thus associated attacks the most formidable animals—wild boars, tigers, and even lions. They are said, however, even while in this condition, to exhibit a disposition to yield to man, and if approached by him with gentleness, will submit to be caressed. On the other hand, if dogs that have been once tamed are driven from the haunts of men and the protection to which they have been accustomed, they readily become wild and associate together in troops. There are many instances of such troops to be found in Canada and America, and there they hunt in packs like wolves, and are so totally estranged from their former habits as to attack the poultry and hogs which they had been taught to respect, and even to destroy foals, though previously accustomed to horses. There is an instance recorded of a black greyhound bitch, belonging to Mr Heaton in Lancashire, that forsook the habitation where she had been reared, and adopted a life of unlimited freedom; but in this country such occurrences are very rare. In the present case, however, though many attempts were made to shoot the greyhound, she eluded for more than six months the vigilance of her pursuers. During all that time she lived on the results of her depredations. She was at length observed frequently to repair to a barn, and was caught by a rope snare placed at the hole through which she entered. Three whelps were found in the barn, which were immediately destroyed, and though she herself was so far reduced to the common habits of her species as to be employed afterwards in the course, she still retained a wildness of look expressive of the life of unusual freedom which she had for a short season enjoyed.

The varieties of the dog, so strong an evidence of its total subjugation, are almost innumerable. These result not only from the treatment to which it is individually subjected, but from the

mixture of the races crossed by dogs of all sizes, colours, and countries. It is however observed, that mongrels do not possess the sagacity belonging to the distinct races, but descend in the scale of intelligence according to the remoteness or impurity of the cross. The effect of domestication extends not only to the shape and colour, but to the size, to the uses, to the very qualities that would seem natural and born with the animal. The dog varies in size from the Irish greyhound, one of which belonging to the Marquis of Sligo measured, from the point of the nose to the tip of the tail, sixty-one inches, from the toe to the top of the fore shoulder twenty-eight inches ; round the chest, about three inches from the forelegs, thirty five inches,—down to the comforter or the mopsie which will not equal in size the head of the former. The tracks of Sir Walter Scott's Maida were often thought to be those of some wild animal escaped from a menagerie. Some of the smaller dogs might be not inconveniently carried in a lady's reticule. It is not only in shape and size, but in powers also, that the dog varies ; some are very heavy in their motions, the greyhound is among the swiftest of all animals. There is scarcely an animal which the dog has not been employed in hunting or attacking, and it seems to understand the species of prey to which it is particularly fitted, and exercises the faculties solely that adapt it to that pursuit. The stag, the fox, and the hare, the badger and the otter, are animals most commonly hunted by dogs ; and the dog which has been accustomed to the chase of one of these animals, never once dreams of being employed in pursuing the others. The bull-dog again attacks the animal from which it has received its cognomen, and chiefly displays its powers in this contest. The mastiff leaves hunting to the other species, and confines himself to the duties of watching his master's property. Yet though they do not naturally seek, they are capable of being encouraged to other exertions. In Stow's Annals there is an account of an engagement between three mastiffs and a lion in the presence of King James the First. The dogs were let loose successively, and the two first received such wounds from the jaws of the lion as caused their death soon after. The third seized the lion by the lip, and did not yield its hold till dreadfully torn by the claws of its antagonist, when the more powerful animal, unwilling to renew the engagement, suddenly leaped over the dog and fled into the inte-

rior of its den. The dog recovered, and was afterwards taken care of by the king's son, who said with that pointedness of expression for which alone that family was distinguished, "He that fought with the king of beasts should never after fight with an inferior creature."

Still, however, though education has done much to bring to perfection the different adaptations of the qualities of the dog, yet it cannot be denied that even in a comparatively untutored state it possesses the germs of these various gifts, and this very circumstance in a remarkable way fits it for domestication. This is made evident by the following remarks of Mr Burchell :* "Our pack of dogs consisted of about five-and-twenty of various sorts and sizes. This variety, though not altogether intentional, as I was obliged to take any that could be procured, was of the greatest service on such an expedition, as I observed that some gave notice of danger in one way, and others in another. Some were more disposed to watch against men, and others against wild beasts ; some discovered an enemy by their quickness of hearing, others by that of scent ; some were useful for speed in pursuing game, some for their vigilance and barking, and others for their courage in holding ferocious animals at bay. No circumstance could render the value and fidelity of these animals so conspicuous and sensible as a journey through regions which, abounding in wild beasts of almost every class, gave continual opportunities of witnessing the strong contrast in their habits between the ferocious beasts of prey which fly at the approach of man, and these kind, but too often injured companions of the human race. Many times, when we have been travelling over plains when those have fled the moment we appeared in sight, have I turned my eyes towards my dogs, to admire their attachment, and have felt a grateful affection towards them for preferring our society to the wild liberty of other quadrupeds. We must not mistake the nature of the case ; it is not because we train him to our use, and have made choice of him in preference to other animals, but because this particular species feels a natural desire to be useful to man, and from spontaneous impulse attaches itself to him. Were it not so, we should see in various countries an equal familiarity with various other quadrupeds, according to

* Travels in Africa.

the habits, the taste, or the caprice of different nations. But everywhere it is the dog only takes delight in associating with us, in sharing our abode, and is even jealous that our attentions should be bestowed on him alone ; it is he who knows us personally, watches for us, and warns us of danger. It is impossible for the naturalist, when taking a survey of the whole animal creation, not to feel a conviction that this friendship between two creatures so different from each other must be the result of the laws of nature ; nor can the humane and feeling mind avoid the belief, that kindness to those animals, from which he derives continued and essential assistance, is part of his moral duty."

We accordingly trace in the various pursuits and duties to which the dog has been rendered familiar, the mingled results of the original variety of disposition and adaptation, along with those to be ascribed to careful training ; sometimes we observe nature and sometimes art predominant. The dhole, or wild dog of India, though not above the size of a small greyhound, has compact and remarkably strong limbs, and its courage being equal to the attack of the largest animals, it seeks these as its prey. It prefers elks to other deer, and is particularly disposed to the pursuit of the tiger. Captain Williamson supposes that there is a singular enmity between this dog and the tiger, and that to this cause we are to ascribe the thinness of the latter species in the wilds of India ; otherwise they would multiply to such an extent as to exterminate the other tenants of the desert. As the dhole hunts in packs, it may with ease overcome the tiger found singly in these regions. The blood-hound of England and Scotland, it is well known, possessed the remarkable property of pursuing depredators either by scent of their footsteps, or the game or prey which they had abstracted. It is now scarce. Sir Walter Scott describes the only specimen which he ever saw,—one kept at Keeldar castle,—as being "like the Spanish pointer, but much stronger, and untameably fierce ; colour black and tawny, long pendulous ears, a deep back, and strongly made, something like the old English mastiff now so rare." Yet we are not without proofs well-authenticated of its peculiar powers in tracing persons' footsteps. "A person of quality," says Mr Boyle, "to make trial whether a young blood-hound was well-instructed, desired one of his servants to walk to a town four miles off, and then to a market town three miles from thence. The dog, without see-

ing the man he was to pursue, followed him by the scent to the above mentioned places, notwithstanding the multitude of market people that went along the same road, and of travellers that had occasion to cross; and when the blood-hound came to the cross market town, he passed through the streets without taking notice of any of the people there, and ceased not till he had gone to the house where the man he sought rested himself; and where he found him in an upper room, to the wonder of those who had accompanied him in this pursuit."

The same determination in the pursuit of its peculiar object is observable in the stag-hound. Many years since, a very large stag was turned out of Whinfield park in the county of Westmoreland, and was pursued by the hounds till, by accident or fatigue, the whole pack was thrown out with the exception of two dogs which continued the chase. Its length is uncertain, but the chase was seen at Red Kirk near Annan in Scotland, distant by the post road about forty-six miles. The stag returned to the park from which he had set out, so that considering the circuitous route which it pursued, it is supposed to have run over not less than one hundred and twenty miles. It was its greatest and last achievement, for it leapt the wall of the park and immediately expired; the hounds were also found dead at no great distance from the wall which they had been unable to leap. An inscription was placed on a tree in the park, in memory of the animals, and the horns of the stag, the largest ever seen in that part of the country, were placed over it. In like manner, the fox-hound, with undaunted determination, pursues its less fleet but more wily prey. A young bitch of this species pursuing a track contrary to the other hounds and to the opinion of the whipper-in, he applied the whip to the animal and accidentally struck one of her eyes out of the socket. She still persevered, and proved herself right, for the fox had stolen away, and she pursued him unheeded alone. Some time afterwards the pack hit off the chase; after they had run a good distance, a farmer told them that they were far behind the fox, which was flying before a single hound very bloody about the head. The pack got up; the bitch, however, pursued to the death, when her eye which had hung down during the chase, was cut off with a pair of scissors. Terriers discover a similar earnestness and activity in the destruction of vermin. One named Billy killed a

hundred rats in eight minutes—these, however, were confined in a space twelve feet square. Another English terrier belonging to Sir Patrick Walker, came to that gentleman one morning, and with expressive gestures intimated its anxiety that he should follow it. It led him to a large chest filled with pieces of old wood, which it seemed to solicit should be removed; when this was done, a large rat appeared, on which the dog instantly sprang. On another very similar occasion, the rat had gone off, but after testifying its disappointment, it suddenly dashed up a ladder placed against an out-house, and caught the hapless fugitive in a spout. The Tumbler displays the same earnestness in the pursuit of the rabbit, and a peculiar cunning, from which it derives its name. It does not run directly at its game, but scampers and tumbles about in an apparently heedless manner till within reach of its prey, which it seizes by a sudden spring. It is also sure to watch in such a position that the wind be blowing from the rabbit burrows towards itself, so that the rabbits do not feel its scent, while it has the advantage of perceiving theirs. Bewick, during moonlight, at Holy Island, having fallen in with some rabbit stealers, had an opportunity of observing the prompt sagacity of the lurcher, the species of dog which they employed. The dogs successively came in, bearing a rabbit, which each laid at the feet of its master. The dogs never attempted to go out during the day, but when the men intended to set forth at night, they threw down the sacks in which they carried their booty, when the dogs would lie down beside them without attempting to stir till their masters took up the sacks. The dogs almost never barked, except on the way to or from the place of plunder. When they met any person, they invariably made a noise. They knew where to leave the high ways to avoid villages, and though undoubtedly much pains must have been bestowed in training them, they showed an extraordinary readiness in apprehending the peculiar nature of their employment.

It is not however solely in the pursuit of prey that the dog discovers its various capabilities. The mastiff is no less remarkable for its fidelity in watching than some other species for their skill in the chase. It seems to understand the importance of its charge, and will not quit it but with the loss of life. It makes regular rounds of the premises committed to its charge; its carefulness increases during the night, when it gives signals of its

presence by repeated barkings, which increase in vehemence on the appearance of any cause of alarm. It will not itself touch the property it protects. One which had by accident been shut up for a whole day in a well-stored pantry, never touched the provisions of which it must have stood in need, though immediately on coming out it attacked a bone which was given it with great voracity. It is immoveably faithful. A mastiff that belonged to a chimney-sweeper lay down, according to his orders, on a soot-bag in the middle of a narrow street in Southampton, and was left there. A loaded cart coming up, the driver desired the dog to remove,—it refused; he threatened to drive over it—and did so—and the faithful animal was crushed to death.

Many species of dogs and spaniels in particular will protect meat from the assaults both of cats and of other dogs. Mr Blaine relates that being called from dinner he left a cat and a spaniel in the room. When he returned he found the latter stretched along the table by the side of a leg of mutton, which it had evidently been defending from the cat which was skulking in a corner. Mr Sharp states that his grandfather, Kirkpatrick, had a greyhound which watched the kitchen, especially protecting meat from the assaults of other dogs and of cats. Lieutenant Shipp* gives an account of an Albanian dog that would regularly, when his master was on watch, stand his hour and walk his round, in dark nights put his ear to the ground and listen, and never during the period assigned venture to lie down. The man who gave him the account stated, that having presented the dog to an officer in the Company's service who took him from Meerut, where he then was, to Loodianna, a distance of four hundred miles, the moment the officer let him loose he set off for his old master, and performed the journey in two days and a half. He went through the whole barrack, visiting every sleeping soldier in his separate bat, till he found his master on the mainguard, and awakened him by licking his face. One day his master fell asleep at some distance from the camp, and when he awoke found his clothes torn and himself dragged more than three yards from the bush where he lay down; on getting up he found a large serpent almost torn to pieces, no doubt by his faithful guard. Very different services have been allotted to the Sibe-

* Shipp's Memoirs.

rian dog, yet even from these the animal does not recoil. Though turned loose in the summer to shift for themselves, in the winter these dogs return to their masters to a sparing and putrid diet, and to subjection to the yoke. They are employed in dragging sledges along the snow, and they will perform seventy miles in a day. They seldom miss the path; though not observable by the master when they do lose it, they soon regain it by the smell, and if their master stops in the middle of a savage waste, they gather round him, and defend and keep him warm. They even give intimations of the approach of such storms as render it advisable to seek for some shelter, by stopping and scraping with their feet. In the same way Newfoundland dogs, in their native country, are harnessed in the sledge, and four or five of them will drag with ease for some miles a load of wood of twenty or thirty stones. A gentleman relates, that he has seen a dog of this species which used to lie at the door of a tavern in the High-street of Glasgow, and when any person came to the house, it trotted before him, rang the bell, and then resumed its station at the door. The Turnspit, it is well known, derived its name from the service in which it was engaged before the invention of machinery to do the same work, and, what is remarkable, now that the office is extinct, so also has nearly become the species which used to perform it. "I have now in my kitchen," said the Duke de Lincourt to M. Descartes, "two Turnspits which take their turns regularly every other day in the wheel: one of them not liking his employment, hid himself on the day he should have wrought, when his companion was forced to mount the wheel in his stead; but crying and wagging his tail, he intimated that those in attendance should first follow him. He immediately conducted them to a garret, where he dislodged the idle dog, and killed him immediately." This occupation, it is plain, has not been an agreeable one—yet the following occurrence at the Jesuits' college at Fleche shows, like the preceding, that some of the species have thought it the duty of the Turnspit. When the cook had prepared the meat for roasting, he found that the dog which should have wrought the spit had disappeared. He attempted to employ another, but it bit his leg and fled. Soon after, however, the refractory dog entered the kitchen driving before him the truant turnspit, which immediately of its own accord went into the wheel. Dogs

are equally willing to obey their masters in illicit services, as in these various and useful duties. In the Netherlands in 1795, they were employed in smuggling, and were trained to go backwards and forwards loaded with lace and such commodities, between two places on the frontiers, without any person to attend them, and when it was perfectly dark. A sagacious dog always preceded them, and when he scented custom-house officers he always turned back, which was a signal for a retreat. When they had escaped all dangers and reached the receiving house, the leading dog entered, and the rest did not hasten up till a whistle intimated to them that all was safe. In some places the same practice prevails at the present day, and by an official statement published at Metz, it appears that no fewer than 55,800 dogs had crossed the Rhine loaded with contraband goods, and escaped the vigilance of the excise ; and, drawing a calculation from the loads carried by those which were seized, they must have conveyed upwards of one hundred and thirty four tons of unlawful merchandise.

All these instances show the wonderful exertions which the dog may be brought to make of its varied capabilities,—but the services of the shepherd's dog are the most peculiar and useful of all,—and if we consider the sagacity displayed, perhaps the most remarkable. When once trained he becomes perfectly acquainted with the extent of his sphere of duty, however great, and with every individual in the flock ; he will most correctly select his own party and drive off intruders. A word or signal from the shepherd will direct him to conduct the flock to any point required. The labour of the shepherd with the assistance of his dog is comparatively easy, without its aid it would be next to impossible to collect flocks in those extensive and precipitous tracts of mountain land, where the sheep delight to graze, and which in many places are quite inaccessible to man. When driving the sheep on a road, the assistance of the dog is equally valuable as in the field. Though left alone for hours, the dog always keeps the flock within the limits of a made road, even though there are no fences, he watches every avenue and cross path that leads from it, at these he posts himself till they are all past, threatening every one that attempts to move that way ; and should any of them escape he pursues them, and will force them back to their companions without injuring them. On the sub-

ject of the habits and sagacity of the shepherd's dog, we are happy at being able to quote from Mr Hogg, a man who on this subject has singularly united the advantage of experience, and the talent of very happy description.

"My dog Sirrah," says he, "was, beyond all comparison, the best dog I ever saw : he was of a surly and unsocial temper,—disdaining all flattery, he refused to be caressed ; but his attention to my commands and interests will never again, perhaps, be equalled by any of the canine race. When I first saw him, a drover was leading him in a rope ; he was both lean and hungry, and far from being a beautiful animal, for he was almost all black, and had a grim face, striped with dark-brown. The man had bought him of a boy, somewhere on the Border, for three shillings, and had fed him very ill on his journey. I thought I discovered a sort of sullen intelligence in his countenance, notwithstanding his dejected and forlorn appearance ; I gave the drover a guinea for him, and I believe there never was a guinea so well laid out, at least I am satisfied I never laid one out to so good a purpose. He was scarcely a year old, and knew so little of herding, that he had never turned a sheep in his life ; but as soon as he discovered that it was his duty to do so, and that it obliged me, I can never forget with what anxiety and eagerness he learned his different evolutions. He would try every way deliberately, till he found out what I wanted him to do, and, when I once made him understand a direction, he never forgot or mistook it again. Well as I knew him, he often astonished me ; for, when hard pressed in accomplishing the task that he was put to, he had expedients of the moment that bespoke a great share of the reasoning faculty."

Among other remarkable exploits of Sirrah, as illustrative of his sagacity, Mr Hoog relates, that, upon one occasion, about seven hundred lambs, which were under his care at weaning time, broke up at midnight, and scampered off, in three divisions, across the neighbouring hills, in spite of all that he and an assistant could do to keep them together. The night was so dark that he could not see Sirrah ; but the faithful animal heard his master lament their absence in words which, of all others, were sure to set him most on the alert ; and, without more ado, he silently set off in quest of the recreant flock. Meanwhile the shepherd and his companion did not fail to do all in their

power to recover their lost charge ; they spent the whole night in scouring the hills for miles round, but of neither the lambs nor Sirrah could they obtain the slightest trace. It was the most extraordinary circumstance that had ever occurred in the annals of pastoral life. They had nothing for it, day having dawned, but to return to their master, and inform him that they had lost his whole flock of lambs, and knew not what was become of one of them. "On our way home, however," says Mr Hogg, "we discovered a lot of lambs at the bottom of a deep ravine called the Flesh Cleuch, and the indefatigable Sirrah standing in front of them looking round for some relief, but still true to his charge. The sun was then up, and when we first came in view, we concluded that it was one of the divisions which Sirrah had been unable to manage until he came to that commanding situation. But what was our astonishment when we discovered that not one lamb of the whole flock was wanting ! How he had got all the divisions collected in the dark is beyond my comprehension. The charge was left entirely to himself from midnight until the rising sun ; and if all the shepherds in the Forest had been there to have assisted him, they could not have effected it with greater propriety. All that I can further say is, that I never felt so grateful to any creature under the sun as I did to my honest Sirrah that morning."

"I sent you," says Mr Hogg, in a letter to the Editor of Blackwood's Edinburgh Magazine, "an account of a notable dog of my own, named Sirrah, which amused a number of your readers a great deal, and put their faith in my veracity somewhat to the test ; but in this district, where the singular qualities of the animal were known, so far from any of the anecdotes being disputed, every shepherd values himself to this day on the possession of facts far outstripping any of those recorded by you formerly. But, in the first place, I must give you some account of my own renowned Hector, which I promised long ago. He was the son and immediate successor of the faithful old Sirrah ; and though not nearly so valuable a dog as his father, he was a far more interesting one. He had three times more humour and whim about him : and though exceedingly docile, his bravest acts were mostly tinged with a grain of stupidity, which showed his reasoning faculty to be laughably obtuse. I shall mention a striking instance of it. I was once at the farm of Short-

hope on Ettrick head, receiving some lambs that I had bought, and was going to take to market, with some more, the next day. Owing to some accidental delay, I did not get final delivery of the lambs till it was growing late ; and being obliged to be at my own house that night, I was not a little dismayed lest I should scatter and lose my lambs if darkness overtook me. Darkness did overtake me by the time I got half-way, and no ordinary darkness for an August evening. The lambs having been weaned that day, and of the wild black-faced breed, became exceedingly unruly, and for a good while I lost hopes of mastering them. Hector managed the point, and we got them safe home ; but both he and his master were alike sore forefoughten. It had become so dark that we were obliged to fold them with candles ; and, after closing them safely up, I went home with my father and the rest to supper. When Hector's supper was set down, behold he was awanting ! and as I knew we had him at the fold, which was within call of the house, I went out and called and whistled on him a good while, but he did not make his appearance. I was distressed about this ; for, having to take away the lambs next morning, I knew I could not drive them a mile without my dog if it had been to save me the whole drove. The next morning, as soon as it was day, I arose and inquired if Hector had come home ? No ; he had not been seen. I knew not what to do ; but my father proposed that he would take out the lambs and herd them, and let them get some meat to fit them for the road, and that I should ride with all speed to Shorthope to see if my dog had gone back there. Accordingly we went together to the fold to turn out the lambs, and there was poor Hector sitting trembling in the very middle of the fold-door, on the inside of the flake that closed it, with his eyes still stedfastly fixed on the lambs. He had been so hardly set with them after it grew dark, that he durst not for his life leave them, although hungry, fatigued, and cold, for the night had turned out a deluge of rain. He had never so much as lain down ; for only the small spot that he sat on was dry, and there had he kept watch the whole night. Almost any other colley would have discerned that the lambs were safe enough in the fold, but honest Hector had not been able to see through this. He even refused to take my word for it ; for he would not quit his watch though he heard me calling both at night and morning.

“Hector was quite incapable of performing the same feats among sheep that his father did; but as far as his judgment served him, he was a docile and obliging creature. He had one singular quality, of keeping true to the charge to which he was set. If we had been shearing, or sorting sheep in any way, when a division was turned out, and Hector got the word to attend to them, he would have done it pleasantly for a whole day without the least symptom of weariness. No noise or hurry about the fold, which brings every other dog from his business, had the least effect on Hector, save that it made him a little troublesome on his own charge, and set him a-running round and round them, turning them in at corners, out of a sort of impatience to be employed as well as his baying neighbours at the fold. Whenever old Sirrah found himself hard set in commanding wild sheep on steep ground, where they are worst to manage, he never failed, without any hint to the purpose, to throw himself wide in below them, and lay their faces to the hill, by which means he got the command of them in a minute. I never could make Hector comprehend this advantage with all my art, although his father found it out entirely of himself. The former would turn or wear sheep no other way but on the hill above them; and, though very good at it, he gave both them and himself double the trouble and fatigue.

“It is a curious fact, in the history of these animals, that the most useless of the breed have often the greatest degree of sagacity in trifling and useless matters. An exceedingly good Sheep-Dog attends to nothing else but that particular branch of business to which he is bred. His whole capacity is exerted and exhausted on it, and he is of little avail in miscellaneous matters; whereas, a very indifferent cur, bred about the house, and accustomed to assist in every thing, will often put the more noble breed to disgrace in those paltry services. If one calls out, for instance, that the cows are in the corn, or the hens in the garden, the house-colley needs no other hint, but runs and turns them out. The Shepherd’s Dog knows not what is astir; and, if he is called out in a hurry for such work, all that he will do is to break to the hill, and rear himself up on end to see if no sheep are running away. A bred sheep-dog, if coming hungry from the hills, and getting into a milk-house, would most likely think of nothing else than filling his belly with the cream. Not

so his uninitiated brother; he is bred at home to far higher principles of honour. I have known such lie night and day among from ten to twenty pails full of milk, and never once break the cream of one of them with the tip of his tongue, nor would he suffer cat, rat, or any other creature to touch it. This latter sort, too, are far more acute at taking up what is said in a family.

"The anecdotes of these animals are all so much alike, that were I but to relate the thousandth part of those I have heard, they would often look very much like repetitions. I shall therefore only mention one or two of the most singular, which I know to be well authenticated.

"There was a shepherd lad near Langholm, whose name was Scott, who possessed a bitch famed over all the West Border for her singular tractability. He could have sent her home with one sheep, two sheep, or any given number from any of the neighbouring farms; and, in the lambing season, it was his uniform practice to send her home with the kebbed ewes just as he got them. I must let the town reader understand this. A kebbed ewe is one whose lamb dies. As soon as such is found, she is immediately brought home by the shepherd, and another lamb put to her; and Scott, on going his rounds on the hill, whenever he found a kebbed ewe, immediately gave her in charge to his bitch to take home, which saved him from coming back that way again and going over the same ground he had visited before. She always took them carefully home, and put them into a fold which was close by the house, keeping watch over them till she was seen by some one of the family; upon which she instantly decamped and hastened back to her master, who sometimes sent her three times home in one morning with different charges. It was the custom of the farmer to watch her and take the sheep in charge from her: but this required a good deal of caution; for as soon as she perceived that she was seen, whether the sheep were put into the fold or not, she concluded her charge was at an end, and no flattery could induce her to stay and assist in folding them. There was a display of accuracy and attention in this that I cannot say I have ever seen equalled."

"The late Mr Steel, flesher in Peebles, had a bitch that was fully equal to the one mentioned above, and that in the very same qualification too. Her feats in taking sheep from the

neighbouring farms into the Flesh-market at Peebles, form innumerable anecdotes in that vicinity, all similar to one another. But there is one instance related of her, that combines so much sagacity with natural affection, that I do not think the history of the animal creation furnishes such another.

“Mr Steel had such an implicit dependence on the attention of this animal to his orders, that, whenever he put a lot of sheep before her, he took a pride in leaving them to herself, and either remained to take a glass with the farmer of whom he had made the purchase, or took another road to look after bargains or other business. But one time he chanced to commit a drove to her charge at a place called Willenslee, without attending to her condition as he ought to have done. This farm is five miles from Peebles, over wild hills, and there is no regularly defined path to it. Whether Mr Steel remained behind, or chose another road, I know not; but, on coming home late in the evening, he was astonished at hearing that his faithful animal had not made her appearance with the flock. He and his son, or servant, instantly prepared to set out by different paths in search of her; but, on their going out to the street, there was she coming with the drove, no one missing; and marvellous to relate, she was carrying a young pup in her mouth! She had been taken in travail on those hills; and how the poor beast had contrived to manage the drove in her state of suffering is beyond human calculation, for her road lay through sheep the whole way. Her master’s heart smote him when he saw what she had suffered and effected: but she was nothing daunted; and having deposited her young one in a place of safety, she again set out full speed to the hills, and brought another and another, till she removed her whole litter one by one; but the last one was dead. I give this as I have heard it related by the country people; for though I knew Mr Walter Steel well enough, I cannot say I ever heard it from his own mouth. I never entertained any doubt, however, of the truth of the relation; and certainly it is worthy of being preserved, for the credit of that most docile and affectionate of all animals,—the Shepherd’s Dog.”

Other instances might be adduced, showing a similar fidelity and sagacity, but as the foregoing have been so abundant, we shall confine ourselves to one, which proves that the animal is willing to sacrifice its life to its trust. A shepherd having driven a part

of his flock to a fair, left the rest in charge of his dog. Unfortunately, when at the fair, he forgot the circumstances in which he had left both dog and sheep, and did not return till the third day. His first inquiry on reaching home, was, whether the dog had been seen, and he was answered in the negative. "Then he must be dead!" he said in a tone of anguish, and repaired to the heath. There the dog lay, in the vicinity of its charge, but it had just power to crawl to its master's feet, and express joy at his return, and then immediately expired.

The alertness and sagacity which the Shepherd's dog displays is the result of instinct or natural adaptation and training, along with a desire to serve its master, but it is equally willing to assist him in stealing his neighbour's, as in watching his own flock, and as Mr Hogg says, it seems to discover a peculiar delight in forwarding such dangerous and unlawful proceedings. "The stories related of the dogs of sheep-stealers," says he, "are fairly beyond all credibility. I cannot mention names, for the sake of families that still remain in the country; but there have been sundry men executed, who belonged to this district of the kingdom, for that heinous crime, in my own days; and others have absconded, just in time to save their necks. There was not one of these to whom I allude who did not acknowledge his dog to be the greatest aggressor. One young man in particular, who was, I believe, overtaken by justice for his first offence, stated, that after he had folded the sheep by moonlight, and selected his number from the flock of a former master, he took them out, and set away with them towards Edinburgh. But before he had got them quite off the farm, his conscience smote him, as he said, (but more likely a dread of that which soon followed,) and he quitted the sheep, letting them go again to the hill. He called his dog off them; and mounting his pony, he rode away. At that time he said his dog was capering and playing around him, as if glad of having got free of a troublesome business; and he regarded him no more, till, after having rode about three miles, he thought again and again that he heard something coming up behind him. Halting, at length, to ascertain what it was, in a few minutes there comes his dog with the stolen animals, driving them at a furious rate to keep up with his master. The sheep were all smoking, and hanging out their tongues, and their guide was fully as warm as they. The young

man was now exceedingly troubled, for the sheep having been brought so far from home, he dreaded there would be a pursuit, and he could not get them home again before day. Resolving, at all events, to keep his hands clear of them, he corrected his dog in great wrath, left the sheep once more, and taking colley with him, rode off a second time. He had not ridden above a mile, till he perceived that his assistant had again given him the slip; and suspecting for what purpose, he was terribly alarmed as well as chagrined; for daylight now approached, and he durst not make a noise calling on his dog, for fear of alarming the neighbourhood, in a place where they were both well known. He resolved therefore to abandon the animal to himself, and take a road across the country which he was sure the other did not know, and could not follow. He took that road; but being on horseback, he could not get across the enclosed fields. He at length came to a gate, which he shut behind him, and went about half a mile farther, by a zigzag course, to a farm-house where both his sister and sweetheart lived; and at that place he remained until after breakfast time. The people of this house were all examined on the trial, and no one had either seen the sheep or heard them mentioned, save one man, who came up to the aggressor as he was standing at the stable-door, and told him that his dog had the sheep safe enough down at the Crooked Yett, and he needed not hurry himself. He answered, that the sheep were not his—they were young Mr Thomson's, who had left them to his charge, and he was in search of a man to drive them, which made him come off his road.

“After this discovery, it was impossible for the poor fellow to get quit of them; so he went down and took possession of the stolen drove once more, carried them on, and disposed of them; and, finally, the transaction cost him his life. The dog for the last four or five miles that he had brought the sheep, could have no other guide to the road his master had gone, but the smell of his pony's feet.”

“It is also well known, that there was a notorious sheep-stealer in the county of Mid-Lothian, who, had it not been for the skins and the heads, would never have been condemned, as he could, with the greatest ease, have proved an *alibi* every time on which there were suspicions cherished against him. He always went by one road, calling on his acquaintances, and taking

care to appear to every body by whom he was known, while his dog went by another with the stolen sheep ; and then on the two felons meeting again, they had nothing more to do than turn the sheep into an associate's enclosure, in whose house the dog was well fed and entertained, and would have soon taken all the fat sheep on the Lothian edges to that house. This was likewise a female, a jet-black one, with a deep coat of soft hair, but smooth-headed, and very strong and handsome in her make. On the disappearance of her master, she lay about the hills and places where he had frequented ; but she never attempted to steal a drove by herself, nor the smallest thing for her own hand. She was kept some time by a relation of her master's, but never acting heartily in his service, soon came privately to an untimely end."

The following is also a striking instance of the readiness and skill with which the dog aids such proceedings. When a sheep-stealer, who was some years afterwards hanged, intended to steal sheep, he did not perform the act himself, but despatched his dog as his substitute. With this view, under pretence of viewing the sheep as a purchaser, he went over the grounds with the dog at his feet, to which he secretly gave a signal, to let it know the sheep he wanted, to the number, perhaps, of ten or twenty out of a flock of some hundreds, he then went off, and from the distance of some miles sent back the dog, which soon separated the assigned sheep from the rest, and brought them to its master.

The dog, so capable of being trained to various services, must possess much natural sagacity, and it accordingly discovers strong powers of observation and skill, in apprehending the uses of the objects around it. A small Italian greyhound at Bologna, used daily to leave home, for the purpose of visiting some other dogs of the same species. On these occasions he placed himself opposite to the house where they resided, and by loud barking solicited admittance. His noise being troublesome, the inmates not only refused him admittance, but used to drive him off with stones ; these it was enabled to avoid by creeping close to the door. Recourse was then had to the whip ; but he placed himself in a position where he could continue barking, where he was secure from stones, and could escape from the lash. While he was one morning waiting here, he saw a boy come to the house, knock at the door, and gain admittance. From this he

took the hint, crept to the door,—leaped several times at the knocker, succeeded in making it strike, and waited the issue. When the door was opened he immediately rushed in,—and admiration for his ingenuity ever afterwards secured its success.

One of the most striking proofs of the natural sagacity of the dog, is the notion of time, which in many instances unquestionably belongs to the animal. In the neighbourhood of some towns, there are dogs that regularly repair thither on the market days, when they know they can procure booty. A dog which was some time under the care of Mr Blaine in the Infirmary attached to his premises, was visited by him on Sunday only, and though no change whatever was made in the treatment of the dogs on that day, it discovered its knowledge of the time, by taking its station at the door till Mr Blaine came, a behaviour so marked and so regular, as left no doubt as to the intelligence of the animal. Mr Dibdin states that a friend of his made a journey from home for a short time once a month, which was always a cause of regret to a very affectionate dog which he possessed. As the period of his master's absence was always the same, the dog which at its commencement showed much grief,—recovered his spirits towards its close. When he was convinced his master would soon return, he took the first opportunity of leaving home, and generally met him about two miles distance. The gentleman having died, the dog, though then old and nearly blind, became disconsolate, and after being for a little cheered by mistaking for its master a person who wore similar stockings, on discovering its error, it retired into a corner and soon died. In the following instance the dog displays its sagacity and attachment, as well as its knowledge of time. Hartsucker, in his *Conjectures on Natural History*, says, that his dog was in the habit of accompanying him every Sunday from Paris to the neighbouring village of Charenton. He did not always wish to be accompanied by his dog, and on one occasion had him confined at home. The dog seemed unhappy under his restraint, but that having been repeated on the next occasion, he on the following Saturday set off from Paris for Charenton, and remained there in waiting for his master's arrival.

It becomes a curious question, seeing such is the intelligence of the dog, how far it comprehends the looks and language of those around. "The dog," says a writer in *Loudon's Magazine*,

"is the only animal that dreams, if the horse be not also an exception, and he and the elephant the only animals that understand looks ; the elephant is the only animal that, besides man, feels ennui, the dog the only quadruped that has been brought to speak. Leibnitz bears witness to a hound in Saxony, that could speak distinctly thirty words." Its name, and the common terms in which it is addressed, it undoubtedly understands, and promptly obeys, but it probably guesses at the meaning of more than is directly addressed to it. The Reverend James Simpson, Edinburgh, had a dog which, while he lived at Libberton, had discovered its regard to the interests of its master, by refusing to allow to leave the house, till detected by him, a number of their friends, to whom one Sunday the servants had been furnishing a feast in the kitchen. When about to go to reside in Edinburgh, Mr Simpson had stated in the hearing of the dog, the necessity of his parting with it. It chose its own fortunes, for it disappeared that evening, and was never more heard of by him. It is a well known practice of dogs to go to churches, probably allured by the love of being in the midst of a crowd of people. This practice had been followed by the dogs of a village in Bohemia, not excepting a large English mastiff, which belonged to a nobleman there. This had excited the attention of the authorities, and at a court, a Magistrate who presided, said in an authoritative voice, "that no dogs should be allowed to go to church, let me not see one there in future." The mastiff was present, and seemed to listen with attention ; nor without effect, for on the ensuing Sunday, the mastiff rising early, ran barking at the village dogs, took his station near the door of the church, killed the only dog that ventured there, notwithstanding the prohibition, and always posted himself as a sentinel on duty, before the church, but without ever afterwards entering it. There is a curious story told of the Bath Turnspits, which were fond of collecting together in the Abbey-church during divine service. Once on the occurrence of the word spit, in the service, they were seized with the recollection of their ordinary employments, and all ran out of the church in a hurry. Mr Hogg relates, that his dog Hector comprehended a good deal of what was passing in the family circle, and that his attention and impatience always became manifest when any thing was said about himself—the sheep—the cat—or a hunt. One evening Mr Hogg said

to his mother, that he was going to Bowerhope for a fortnight, but that he would not take Hector with him, for he was constantly quarrelling with the rest of the dogs, singing music, or breeding some uproar. "Nay," said she, "leave Hector with me, I like best to have him at home." These were all the words that passed. Next morning, as the Yarrow was swollen with a great rain, the shepherd did not go away till after breakfast, and when the time came for tying up Hector, he was not to be found. Mr Hogg at once suspected that his dog had anticipated him, in going to Bowerhope, and though the Yarrow was so large, that he had to go to St Mary's Loch, and get across by a boat, he found he had guessed rightly, and that Hector had preceded him, and swam the river; for on coming to Bowerhope, he found the dog very wet, sitting on a knoll at the east end of the house, impatiently waiting his arrival.

Sir Walter Scott has furnished an anecdote on this subject, concerning a dog, which, though meritorious in himself, must ever deserve the greatest share of fame and interest, from the circumstance of having belonged to such a master. "The wisest dog," says Sir Walter, "I ever had, was what is called the Bull-Dog Terrier. I taught him to understand a great many words, insomuch that I am positive that the communication betwixt the canine species and ourselves might be greatly enlarged. Camp once bit the baker, who was bringing bread to the family. I beat him, and explained the enormity of his offence; after which, to the last moment of his life, he never heard the least allusion to the story, in whatever voice or tone it was mentioned, without getting up and retiring into the darkest corner of the room with great appearance of distress. Then if you said, 'The baker was well paid,' or 'The baker was not hurt after all,' Camp came forth from his hiding-place, capered, and barked, and rejoiced. When he was unable, towards the end of his life, to attend me when on horseback, he used to watch for my return, and the servant used to tell him 'his master was coming down the hill, or through the moor,' and although he did not use any gesture to explain his meaning, Camp was never known to mistake him, but either went out at the front to go up the hill, or at the back to get down to the moor-side. He certainly had a singular knowledge of spoken language."

Innumerable are the tricks, and arts, which have been taught

the dog. Mr Wilkie, of Ladythort, had one that had been instructed in the dramatic art, so far as to present to the spectator an imitation of death. When ordered to die, he tumbled on one side, stretched out his legs as if in pain, gave a few convulsive throbs, then turning round on his back, remained motionless, till ordered to get up. Rather, however, than enumerate all the tricks which have been taught these animals, as there is scarcely a dog, on which any pains have been bestowed, that is not an adept in some art,—we shall notice one, which, of itself, sufficiently shows the intelligence which the dog possesses, and the arts to which it may be trained. Mr M'Intyre, patent-mangle manufacturer, Regent Bridge, Edinburgh, has a dog of the Newfoundland breed, crossed with some other, named Dandie, whose sagacious qualifications are truly astonishing and almost incredible. As the animal continues daily to give the most striking proofs of his powers, he is well known in the neighbourhood, and any person may satisfy himself of the reality of those feats, many of which the writer has himself had the pleasure to witness. When Mr M. is in company, how numerous soever it may be, if he but say to the dog, "Dandie, bring me my hat," he immediately picks out the hat from all the others, and puts it in his master's hand. Should every gentleman in company throw a pen-knife on the floor, the dog, when commanded, will select his master's knife from the heap, and bring it to him. A pack of cards being scattered in the room, if his master has previously selected one of them, the dog will find it out and bring it to him. A comb was hid on the top of a mantle-piece in the room, and the dog required to bring it, which he almost immediately did, although in the search he found a number of articles also belonging to his master, purposely strewed around, all which he passed over, and brought the identical comb which he was required to find, fully proving that he is not guided by the sense of smell, but that he perfectly understands whatever is spoken to him. One evening some gentlemen being in company, one of them accidentally dropped a shilling on the floor, which, after the most careful search, could not be found. Mr M. seeing his dog sitting in a corner, and looking as if quite unconscious of what was passing, said to him, "Dandie, find us the shilling and you shall have a biscuit." the dog immediately jumped upon the table and laid down the shilling, which he had previously picked up without having been

perceived. One time, having been left in a room in the house of Mrs Thomas, High-street, he remained quiet for a considerable time ; but as no one opened the door, he became impatient, and rang the bell ; and when the servant opened the door, she was surprised to find the dog pulling the bell-rope. Since that period, which was the first time he was observed to do it, he pulls the bell whenever he is desired ; and what appears still more remarkable, if there is no bell-rope in the room, he will examine the table, and if he finds a hand-bell, he takes it in his mouth and rings it. Mr M. having one evening supped with a friend, on his return home, as it was rather late, he found all the family in bed. He could not find his boot-jack in the place where it usually lay, nor could he find it anywhere in the room after the strictest search. He then said to his dog, "Dandie, I cannot find my boot-jack,—search for it." The faithful animal, quite sensible of what had been said to him, scratched at the room-door, which his master opened. Dandie proceeded to a very distant part of the house, and soon returned carrying in his mouth the boot-jack, which Mr M. now recollected to have left that morning under a sofa. A number of gentlemen, well acquainted with Dandie, are daily in the habit of giving him a penny which he takes to a baker's shop and purchases bread for himself. One of these gentlemen, who lives in James' Square, when passing some time ago, was accosted by Dandie, in expectation of his usual present. Mr. T. then said to him, " I have not a penny with me to-day, but I have one at home." Having returned to his house some time after, he heard a noise at the door, which was opened by the servant, when in sprang Dandie to receive his penny. In a frolic Mr T. gave him a bad one, which he, as usual, carried to the baker, but was refused his bread, as the money was bad. He immediately returned to Mr T.'s, knocked at the door, and when the servant opened it, laid the penny down at her feet, and walked off, seemingly with the greatest contempt. Although Dandie, in general, makes an immediate purchase of bread with the money which he receives, yet the following circumstance clearly demonstrates that he possesses more prudent foresight than many who are reckoned rational beings. One Sunday, when it was very unlikely that he could have received a present of money, Dandie was observed to bring home a loaf. Mr M. being somewhat

surprised at this, desired the servant to search the room to see if any money could be found. While she was engaged in this task, the dog seemed quite unconcerned till she approached the bed, when he ran to her, and gently drew her back from it. Mr M. then secured the dog, which kept struggling and growling while the servant went under the bed, where she found 7½d. under a bit of cloth; but from that time he never could endure the girl, and was frequently observed to hide his money in a corner of a saw-pit, under the dust. When Mr M. has company, if he desire the dog to see any one of the gentlemen home, it will walk with him till he reach his home, and then return to his master, how great soever the distance may be. About three years ago a mangle was sent by a cart from the warehouse, Regent Bridge, to Portobello, at which time the dog was not present. Afterwards, Mr M. went to his own house, North Back of the Canongate, and took Dandie with him, to have the mangle delivered. When he had proceeded a little way the dog ran off, and he lost sight of him. He still walked forward, and in a little time he found the cart in which the mangle was, turned towards Edinburgh, with Dandie holding fast by the reins, and the carter in the greatest perplexity, who now stated that the dog had overtaken him, jumped on his cart, and examined the mangle, and then had seized the reins of the horse and turned him fairly round, and would not let go his hold, although he had beaten him with a stick. On Mr M.'s arrival, however, the dog quietly allowed the carter to proceed to his place of destination.

However great may be the intelligence of the dog, there can be little doubt that it is greatly promoted by its affection for its master, and chiefly devoted to his service. It scarcely obeys others, and does not use the powers which it can easily employ to serve them, while to give satisfaction and to yield service to its master, it sets its invention to work, and with amazing sagacity discovers what is required by his circumstances. About the year 1796, a farmer at Halling in Kent, was returning late from Maidstone market in a state of intoxication. He went astray from the road about half a mile from Willow-walk, and becoming completely benumbed he fell among the snow, in one of the coldest nights ever known. Turning on his back he was soon overpowered by sleep, in such circumstances the usual con-

comitant of cold. His dog, that had followed closely after him, now scratched away the snow from about him, so as to form a protecting wall round his person, and then lay down on his master's breast, for which its shaggy coat proved a seasonable protection from the inclemency of the night and the snow which continued to fall. On the following morning, a person having gone out with the expectation of falling in with some wild fowl, had his notice attracted by the uncommon appearance, and on coming up, the dog encouraged him by the most significant gestures to come near its master. He wiped the icy incrustations from the face of the farmer, whom he then recognised, and had him conveyed to the nearest house in the village, where animation was soon restored. There can be little doubt that the dog, by covering the most vital part, had prevented the stagnation of the blood, and thus preserved the life of its master. He was not ungrateful, but refused to part with the dog, though a large sum was offered for it, saying, that as long as he had a crust of bread, he would share it with the preserver of his life. A farmer near Brechin, having gone during a severe snow-storm in 1798, to visit his sheep, while employed in driving them from the shelter which they had taken beneath some precipitous rocks called Ugly-face, was with his dog buried in an avalanche of snow which fell from these rocks. He was unable to extricate himself, and fell asleep in his desolate situation, but his dog worked its way out, ran to his house, and by significant gestures procured the assistance of some of the inmates, who, following the dog, were led to the spot where he was overwhelmed with snow. They began to dig, and by nightfall found the farmer in an erect position, quite benumbed, but life not extinguished, and being rolled in warm blankets he soon recovered. The last instance of this case which we shall give, discovers a still more persevering attachment in the dog. Eric Rnutson, a fisherman, who resided at a place on the coast of Iceland called the Strand, twenty miles to the south of Reikiavik, left his home early on a December morning, before daylight, with the intention of paying a visit to a friend at Prysivik. His way thither lay twenty-six miles eastward over a mountainous desert. The weather was bright and frosty, and some snow had fallen and covered the ground. His faithful dog, Castor, was his only attendant over the trackless wilds. When he had proceeded about five miles from home, he

fell into a deep chasm, and alighted unhurt on a shelving part of the rock, about sixty feet below the surface. Castor ran about in all directions, howling mournfully, and seeking in vain for some passage to lead him to his master. He frequently came to the place whence the latter fell, and looked down, whining with much anxiety to receive his commands. Three or four times he even seemed determined on leaping down, which Eric prevented him from carrying into effect, by scolding him. In this perplexed situation he ran about the whole day. Late in the evening, however, a better idea seemed to have entered his mind, when he ran home, which he reached about eleven o'clock, and found the door shut, all the inmates of the cottage having retired to sleep. He scratched violently at the door until he awoke the family, when Ion, the younger brother of Eric, arose and let him in. Thinking he had lost his master, and had in consequence returned home, he proceeded towards his bed, but Castor flew to him, scratched him with his paw, and then went to the door and yelled. Some food was offered to him, which he refused to eat, but again ran howling to the door; nor would he desist from visiting all the beds in the cottage, and scratching and yelping, till Ion and another man dressed themselves and followed him, on which he began to bark in that manner in which dogs are in the habit of expressing their joy. They had not gone very far on their way when the weather became extremely boisterous, and they thought of returning home; and, on their turning back, Castor expressed the utmost dissatisfaction, and pulled them by the clothes to induce them to proceed. They did so, and he conducted them to the chasm where poor Eric was. He began to scratch away the new-fallen snow, and signified by a most expressive yell that his master was below; on which Ion hallooed, and an answer was returned by Eric. A rope was soon after procured, and the traveller safely drawn up; when Castor rushed to his master, and, with enthusiastic cordiality, testified extreme joy.

The quality of affection for their masters is possessed by all dogs, but in a much higher degree by those of the larger and more generous species. The greyhound has become noted from the approbation of King Charles I. "Methinks," says Sir Philip Warwick, "because it shows his disesteem of a common court vice, it is not unworthy the relating of him, that one

evening his dog scraping at the door, he commanded me to let in Gipsy, whereupon I took the boldness to say, 'Sir, I perceive you love a greyhound better than a spaniel.' 'Yes,' says he, 'for they equally love their masters, and yet do not flatter them so much.'" With this opinion, however, we must balance that of King Richard II. probably as good a judge of fidelity. The circumstances occurred when that monarch was confined in the Castle of Flint, and are thus recorded by Froissart. "And it was informed me, Kynge Richard had a Grayhound called Mathe, who always waited upon the kynge, and would know no one else. For whensoever the kynge did ryde, he that kept the Grayhound did let hym loose, and he wolde streyght runne to the kynge and fawne upon him, and leap with his fore fete upon the kynge's shoulders. And as the kynge and the Erle of Derby talked togyder in the courte, the Grayhounde, who was wont to leape upon the kynge, left the kynge, and came to the Erle of Derby, Duke of Lancaster, and made to hym the same friendly countinuaunce and chere as he was wont to do to the kynge. The duke, who knew not the Grayhounde, demanded of the kynge what the Grayhounde would do? 'Cosyn,' quod the kynge, 'it is a great good token to you, and an evil sygne to me.' 'Sir, how know ye that?' quod the duke. 'I know it well,' quod the kynge; 'the Grayhounde maketh you chere this daye as kynge of England, as ye shall be, and I shall be deposed; the Grayhound hath this knowledge naturally, therefore take hym to you, he will follow you and forsake me.' The duke understood well those words, and cheryshed the Grayhounde, who would never after follow Kynge Richarde, but follow the Duke of Lancaster."

There are cases on record, in which the dog seems to have entered very singularly into its master's sentiments, and in circumstances of a delicacy apparently very remote from the natural scope of the animal's feelings. The Count de Monte Veccios had an Alpine Spaniel, which could understand, as his master reported, whatever he said to him, and as it would appear from the following anecdote, also much that he thought. The Count had served long in the wars, and always had this faithful attendant with him. The republic of Venice had been signally obliged to his courage, but had not rewarded him. He had a favour to ask of the then General Morosini; one day when the General

himself had a request to make to the Doge, (who being a person of high elegance and expense in his taste for entertainments,) he laid out half his fortune on a cold collation, to which he had invited him, to put him in humour for his suit. The Count thought this the happiest day in the world for his purpose, imagining that he who was about to ask a favour for himself, would not at that instant deny one to another. He went to him some hours before the time the Doge was expected, and being received in the room where the table was prepared, he began to make his court by praising the elegance and pomp of the preparation, which consisted of many thousands of finely-cut vessels of Venetian glass, filled with the richest sweetmeats and cold provisions, and disposed on fine tables, all covered with one vast cloth, with a deep gold fringe, which swept the ground. The Count said a thousand fine things about the elegance and richness of the dessert, and particularly admired the profusion of expense in the workmanship of the crystal and the weight of the gold fringe. Thus far he was very courteously received; and the lord of the feast pompously told him that all the workmen in Venice had been half a year employed about them. From this he proceeded to the business of his suit; but this met with a very different reception, and was not only refused, but the denial attended with very harsh language. The Count was shocked at the ill-nature of the General, and went away in a very melancholy mood. As he went out, he patted his dog upon the head, and, out of the fulness of his heart, said to him, with an afflicted air,—“ You see, my friend, how I am used.” The dog looked up wishfully in his face, and accompanied him till he was at some distance from the General’s, when, finding him engaged in company, he took that opportunity of leaving him. Returning back to the house of the haughty officer, he entered the great room, and taking hold of the gold tassel at one of the corners of the cloth, he ran forcibly back, and drew it after him, till the whole preparation was in a moment strewed on the ground in a vast heap of dirty and broken glasses; thus revenging his master’s quarrel, and insuring as unexpected a reception to the General’s requests as the latter had given to those of the Count.

It has been made a question, whether the dog remembers his master after a long period of separation. The voice of anti-

quity is in favour of the dog. Homer makes the dog of Ulysses to recognise him after many years' absence, and describes Eumenes, the swine herd, as being thus led to apprehend in the person before him, the hero, of seeing whom he had long despaired. Byron,* on the other hand, was sceptical on the subject. Writing to a friend, who had requested the results of his experience on the subject,—he states, that seeing a large dog, which belonged to him, and had formerly been a favourite, chained at Newstead, the animal sprung towards him, as he conceived, in joy—but he was glad to make his escape from it, with the comparatively trivial injury, of the loss of the skirts of his coat. Perhaps this circumstance may have suggested the following verses of that poet :

And now I'm in the world alone,
 Upon the wide wide sea ;
 But why should I for others groan,
 When none will sigh for me ?
 Perchance my dog will whine in vain,
 Till fed by stranger hands,
 But long ere I come back again,
 He'd tear me where he stands.†

Other equally well-authenticated instances, however, prove, that many dogs long retain the memory of their masters, and are, on seeing him, ready to discover an excessive, and on some occasions to themselves a fatal joy. A gentleman lent a favourite pointer dog to Captain Edwards, of Solihall, near Birmingham, with whom he remained several years ; but as the dog refused to hunt with him, the Captain requested by letter, to send him back to his master, at that time in Ireland. He was conveyed on board a Cork packet, at Bristol, and when the former owner heard that the vessel had arrived, he went to receive his long absent favourite. The vessel was anchored at some distance from shore, but being within hail, and seeing his dog on deck, he called to the men to send him ashore. No sooner, however, did the dog hear his master's voice, than he leaped into the water, and quickly, with great demonstrations of joy, swam to him on the shore. We have stated, that the joy, on recognising an old master, is sometimes fatal to the dog. An officer in the

* Moore's Life of Byron. † Childe Harold's Pilgrimage, Canto I.

British army had a large dog, which he left at home on being called to an expedition to America, during the war with the colonies there. In his absence, the animal always appeared singularly dejected. On the return of the officer, the dog happened to be lying at the door of an apartment into which his master was about to enter; it immediately recognised him, leaped upon his neck, licked his face, and in a few minutes, fell dead at his feet. A similar instance of affection is related in the *Memoirs of the Marquis Langallery*. The Marquis had been two years in the army, and on returning home, was met by his dog, which recognised him as if he had been only absent two days, and leaping on his neck, immediately expired.

The affection of the dog for its master does not end with his life, and innumerable are the anecdotes on record of dogs, which have continued to pine after their master's death, or died immediately after. We shall present one or two well authenticated instances, but they are all so much alike, that it is unnecessary to produce many. It is said in the life of *Mary Queen of Scots*, lately published at Glasgow, that after her head was cut off, her little favourite lapdog which had affectionately followed her, and unobserved had nestled among her clothes, now continued to caress her, and would not leave the body till forced away, and then died two days afterwards.

Mr Renton, of Lammerton, had a herdsman, who, pursuing a sheep that had ran down the steep bank of Blackadder water, fell into the river and was drowned,—his dog, a common shepherd's dog, returned home next morning and led his wife to the spot, holding her by the apron. The body was found. The dog followed it even to the grave, and died in a few days. A mastiff dog belonging to the Honourable Peter Bold of Bold, Esq. attended his master in his chamber during the tedious sickness consequent on a pulmonary consumption. After the gentleman expired, and his corpse was removed, the dog almost every moment entered the apartment, making a mournful whining noise, and continued his researches for several days through all the rooms of the house, but in vain; he then retired to his kennel, which he could not be induced to leave, but refusing all manner of sustenance, died. Of this fact, and his previous affection, the surgeon who attended his master was an eye-witness. In the parish of St Olave, Tooley-street, Borough, the church-

yard is detached from the church, and surrounded with high buildings, so as to be wholly inaccessible but by one large close gate. A poor tailor of this parish dying, left a small Cur Dog inconsolable for his loss. The little animal would not leave his dead master, not even for food ; and, to induce him to eat, it was necessary to place his dish in the same room with the corpse. When the body was removed for burial, this faithful attendant followed the coffin. After the funeral, he was hunted out of the churchyard by the sexton, who, the next day, again found the animal, who had made his way by some unaccountable means into the enclosure and had dug himself a bed on the grave of his master. Once more he was chased out, and again he was found in the same situation the following day. The minister of the parish hearing of the circumstance, had him caught, taken home and fed, and endeavoured by every means to win the animal's affections ; but they were so entirely devoted to his late master, that he took the first opportunity to escape, and regain his lonely situation. With true benevolence, the worthy clergyman permitted him to follow the bent of his inclinations ; but, to soften the rigour of his fate, he built him, upon the grave, a small kennel, which was replenished once a-day with food and water. Two years did this example of fidelity pass in the manner now described, when death put an end to his griefs ; and the philanthropy of the good clergyman allowed his remains an asylum with his beloved master.

A somewhat similar anecdote is related by Lady Morgan.* A Neapolitan dog, called Tortola, that attended its master when sentry in Italy, followed him in the army of Buonaparte to Germany, where he was killed ; returned to Italy, and continued nightly and daily to pace the ground where formerly his round had been, and was supported by the contributions of the inhabitants, who also built for it a small house. The regret of the dog for its master's death is not confined to inactive sorrow ; if his death has been caused by violence, it discovers a singular and persevering hatred of the murderers, which in some cases has led to their detection. The following instance is related in a letter, written in 1764, by a gentleman at Dijon, in France, to his friend in London. " Since my arrival here a man has been

* Book of the Boudoir, vol. I.

broken on the wheel, with no other proof to condemn him than that of a water-spaniel. The circumstances attending it being so very singular and striking, I beg leave to communicate them to you. A farmer, who had been to receive a sum of money, was waylaid, robbed, and murdered, by two villains. The farmer's dog returned with all speed to the house of the person who had paid the money, and expressed such amazing anxiety that he would follow him, pulling him several times by the sleeve and skirt of the coat, that at length the gentleman yielded to his importunity. The dog led him to the field, a little from the roadside, where the body lay. From thence the gentleman went to a public-house, in order to alarm the country. The moment he entered, (as the two villains were there drinking,) the dog seized the murderer by the throat, and the other made his escape. This man lay in prison three months, during which time they visited him once a week with the Spaniel, and though they made him change his clothes with other prisoners, and always stand in the midst of a crowd, yet did the animal always find him out, and fly at him. On the day of trial, when the prisoner was at the bar, the dog was let loose in the court-house, and in the midst of some hundreds he found him out, (though dressed entirely in new clothes,) and would have torn him to pieces had he been allowed; in consequence of which he was condemned, and at the place of execution he confessed the fact. Surely so useful, so disinterestedly faithful an animal, should not be so barbarously treated as I have often seen them, particularly in London."

Other cases might be produced, but we shall only present that of the dog of Montargis, which has become familiar to the public, by being made the subject of a melodrame, frequently acted at the present time. The fame of this English bloodhound has probably been transmitted by a monument in basso-relievo, which still remains in the chimneypiece of the grand hall at the Castle of Montargis, in France. The sculpture, which represents a dog fighting with a champion, is explained by the following narrative:—Aubri de Mondidier, a gentleman of family and fortune, travelling alone through the Forest of Bondy, was murdered, and buried under a tree. His dog, a bloodhound, would not quit his master's grave for several days; till at length compelled by hunger, he proceeded to the house of an

intimate friend of the unfortunate Aubri at Paris, and, by his melancholy howling, seemed desirous of expressing the loss sustained. He repeated his cries, ran to the door, looked back to see if any one followed him, returned to his master's friend, pulled him by the sleeve, and, with dumb eloquence, entreated him to go with him. The singularity of all these actions of the dog, added to the circumstance of his coming there without his master, whose faithful companion he had always been, prompted the company to follow the animal, who conducted them to a tree, where he renewed his howl, scratching the earth with his feet, and significantly entreating them to search the particular spot. Accordingly, on digging, the body of the unhappy Aubri was found. Some time after, the dog accidentally met the assassin, who is styled, by all the historians that relate this fact, the Chevalier Macaire; when, instantly seizing him by the throat, he was with great difficulty compelled to quit his victim. In short, whenever the dog saw the Chevalier, he continued to pursue and attack him with equal fury. Such obstinate violence in the animal, confined only to Macaire, appeared very extraordinary, especially as several instances in which Macaire's envy and hatred to Aubri de Mondidier had been conspicuous. Additional circumstances created suspicion, and at length the affair reached the royal ear. The King (Louis VIII.) accordingly sent for the dog, which appeared extremely gentle, till he perceived Macaire in the midst of several noblemen, when he ran fiercely towards him, growling at and attacking him as usual. The King, struck with such a combination of circumstantial evidence against Macaire, determined to refer the decision to the chance of battle; in other words, he gave orders for a combat between the Chevalier and the dog. The lists were appointed in the Isle of Notre Dame, then an unenclosed, uninhabited place, and Macaire was allowed for his weapon a great cudgel. An empty cask was given to the dog as a place of retreat, to enable him to recover breath. Every thing being prepared, the dog no sooner found himself at liberty, than he ran round his adversary, avoiding his blows, and menacing him on every side, till his strength was exhausted; then springing forward, he seized him by the throat, and threw him on the ground. He confessed his guilt in presence of the King and the whole court. In consequence of this, the Chevalier, after a few days, was convicted upon his own acknow-

ledgment, and beheaded on a scaffold in the Isle of Notre Dame.

The dog uses the most extraordinary exertions and sagacity to save its master from injury. Of these the following anecdotes furnish remarkable instances :—Sir Harry Lee of Ditchley, in Oxfordshire, ancestor of the earl of Litchfield, had a Mastiff which guarded the house and yard ; but had never met with any particular attention from his master, and was retained for his usefulness alone, and not at all as a favourite. One night, as Sir Harry was retiring to his chamber, attended by his valet, an Italian, the Mastiff silently followed him up stairs, which he had never been known to do before, and, to his master's astonishment, presented himself in his bed-room. Being deemed an intruder, he was instantly ordered to be turned out ; which being done, the poor animal began scratching violently at the door, and howling loudly for admission. The valet was sent to drive him away. Discouragement, however, could not check his intended labour of love, or rather providential impulse ; he returned again, and was more importunate than before to be let in. Sir Harry, weary of opposition, bade the servant open the door, that they might see what he wanted to do. This done, the Mastiff, with a wag of his tail, and a look of affection at his lord, deliberately walked up, and crawling under the bed, laid himself down, as if desirous to take up his night's lodging there. To save farther trouble, but not for any partiality for his company, the indulgence was allowed. About the solemn hour of midnight, the chamber-door opened, and a person was heard stepping across the room : Sir Harry started from his sleep ; the dog sprang from his covert, and seizing the unwelcome disturber, fixed him to the spot ! All was dark ; Sir Harry rang his bell in great trepidation in order to procure a light. The person was pinned to the floor by the courageous Mastiff, and roared for assistance. - It was found to be the valet, who little expected such a reception. He endeavoured to apologize for his intrusion, and to make the reasons which induced him to take this step appear plausible ; but the importunity of the dog, the time, the place, the manner of the valet, all raised suspicions in Sir Harry's mind, and he determined to refer the investigation of the business to a magistrate. The perfidious Italian, alternately terrified by the dread of punishment and soothed with the hopes of pardon, at length confessed

that it was his intention to murder his master, and then rob the house. A full-length picture of Sir Harry, with the Mastiff by his side, and the words, "More faithful than favoured," is still to be seen at the family-seat at Ditchley, and is a lasting monument of the gratitude of the master, the ingratitude and perfidy of the servant, and the fidelity of the dog.

About the year 1742, a lady, who resided in a lone house in Cheshire, permitted all her servants, except one female, to go to a supper and dance, at a Christmas merry-meeting, held at an inn about three miles distant, and kept by the uncle of the maid who had remained in the house with her mistress. The servants were not expected back till the morning, consequently the doors and windows were, as usual, secured, and the lady and her servant were going to bed, when they were alarmed by the voice of some persons apparently attempting to break into the house. Fortunately a great Mastiff dog, named Cæsar, was in the kitchen, and set up a tremendous barking, which, however, had not the effect of intimidating the robbers. The maid-servant distinctly heard that the attempt to enter the house was made by the villains endeavouring to force a way through a hole under the sunk story, in the adjoining back-kitchen or scullery. Being a young woman of courage, she went towards the spot, accompanied by the dog, and, patting him on the back, exclaimed, "At him, Cæsar!" The dog made a furious attack on the person who seemed to be at the hole, and gave something a violent shake, when all became quiet, and the animal returned to her with his mouth all besmeared with blood. She afterwards heard some little bustle outside of the house, which soon was stilled. The lady and servant sat up until morning, without farther molestation, when, on going into the court, a quantity of blood was found on the outside of the wall. The other servants, on their return, brought word to the maid that her uncle, the inn-keeper, had died suddenly during the course of the night, they understood, of a fit of apoplexy, and was intended to be buried that day. The maid got leave to go to the funeral, and was surprised to find the coffin, on her arrival, screwed down. She insisted on taking a last view of the body, which was most unwillingly granted; when, to her great surprise and horror, she found his death had been occasioned from his throat being torn open.

The protection of the dog is not always confined to its master. A gentleman returning to London from Newington Green, where he had been on a visit to a friend, was stopped by a footpad armed with a thick bludgeon, who demanded his money, saying, he was in great distress. The gentleman gave him a shilling; but this did not satisfy the fellow, who immediately attempted to strike him with the bludgeon, when, to the surprise of the citizen, the villain's arm was suddenly arrested by a Cocker dog, which seized him fast. The robber with some difficulty extricated himself from his assailant, and made his escape. The dog belonged to the gentleman's friend with whom he had dined, and had followed him unperceived. The faithful creature guarded him home, and then made the best of his way back to his master.

The Newfoundland dog is especially alert in swimming, and very active in saving drowning persons,—sometimes even without the command of its master, but as if by a natural and benevolent impulse. Mr Thomas Mackaill happened one day in the year 1812, to be walking along the banks of the Thames, nearly opposite the Penitentiary at Mill-bank, when a wherry upset, with two men on board. A gentleman happened to pass at the same time, accompanied by a fine Newfoundland dog; but as he did not at first observe the accident, he was surprised at his attendant making a sudden leap into the river. He soon discovered that he was making all possible speed for the unfortunate men, one of whom could not swim, and was using violent efforts to sustain himself; the dog seized him first, as seeming to stand most in need of his assistance, and brought him safely to the shore, and returned to the other, and brought him also, in the presence of at least a hundred spectators.

The instances in which persons have been saved from drowning, by the Newfoundland dog, are innumerable. The following anecdote is the more remarkable, as it does not appear that the affectionate animal was of that species. A young man belonging to the city of Paris, desirous of getting rid of his dog, took it along with him to the river Seine. He hired a boat, and rowing into the stream, threw the animal in. The poor creature attempted to climb up the side of the boat, but his master, whose intention was to drown him, constantly pushed him back with the oar. In doing this he fell himself into the water, and would

certainly have been drowned, had not the dog, as soon as he saw his master struggling in the stream, suffered the boat to float away, and held him above the water till assistance arrived, and his life was saved.

The bull-dog would appear the least likely to combat with a heavy sea, and yet the following circumstances are well-authenticated. On board a ship, which struck upon a rock near the shore, there were three dogs, two of the Newfoundland variety, and one a small but firmly built English bull-dog. It was important to have a rope carried ashore, and it was thought that one of the Newfoundland dogs might succeed; but he was not able to struggle with the waves, and perished, and the other Newfoundland dog, being thrown over with the rope, shared the same fate. But the bull-dog, though not habituated to the water, swam triumphantly to land, and thus saved the lives of the persons on board. Among them was his master, a military officer, who still has the dog in his possession.

Among the instances of sagacity, mingled with an affection for its master, may be mentioned those cases in which the dog notices, or detects thefts, and restores lost or stolen articles to its master. An acquaintance of Lord Fife's coachman, had put a bridle belonging to the earl, in his pocket, and would have abstracted it, had he not been stopped by a Highland cur, that observed him, barked at him, and absolutely bit his leg. This was unusual conduct in the dog, but the wonder of the servants ceased, when they saw the end of the bridle peeping out of the visitor's pocket, and it being delivered up, the dog became quiet. It is well known, that in London, the other year, a box, properly directed, was sent to a merchant's shop to lie there all night, and be shipped off with other goods next morning, and that a dog, which accidentally came into the shop with a customer, by his smelling it, and repeatedly barking in a peculiar way, led to the discovery that the box contained not goods, but a fellow who intended to admit his companions and plunder the shop in the night-time.

The following is an extract of a letter from St Germain's: "An English gentleman some time ago came to our Vauxhall with a large Mastiff, which was refused admittance, and the gentleman left him in the care of the body-guards, who are placed there. The Englishman, some time after he had entered, re-

turned to the gate and informed the guards that he had lost his watch, telling the sergeant, that if he would permit him to take in the dog, he would soon discover the thief. His request being granted, the gentlemen made motions to the dog of what he had lost, which immediately ran about amongst the company, and traversed the gardens, till at last he laid hold of a man. The gentleman insisted that this person had got his watch; and on being searched, not only his watch, but six others, were discovered in his pockets. What is more remarkable, the dog possessed such a perfection of instinct as to take his master's watch from the other six, and carry it to him."

Of the alertness of the dog, in recovering the lost property of its master, we shall give one other instance.—M. Dumont, a tradesman of the Rue St Denis, Paris, offered to lay a wager with a friend, that if he were to hide a six-livre piece in the dust, his dog would discover and bring it to him. The wager was accepted, and the piece of money secreted, after being carefully marked. When they had proceeded some distance from the spot, M. Dumont called to his dog that he had lost something, and ordered him to seek it. Caniche immediately turned back, while his master and his companion pursued their walk to the Rue St Denis. Meanwhile a traveller, who happened to be just then returning in a small chaise from Vincennes, perceived the piece of money, which his horse had kicked from its hiding-place; he alighted, took it up, and drove to his inn in Rue Pont-aux-Choux, and Caniche had just reached the spot in search of the lost piece when the stranger picked it up. He followed the chaise, went into the inn, and stuck close to the traveller. Having scented out the coin, which he had been ordered to bring back, in the pocket of the latter, he leaped up incessantly at and about him. The gentleman, supposing him to be some dog that had been lost or left behind by his master, regarded his different movements as marks of fondness; and as the animal was handsome, he determined to keep him. He gave him a good supper, and, on retiring to bed, took him with him to his chamber. No sooner had he pulled off his breeches, than they were seized by the dog; the owner conceiving he wanted to play with them, took them away again. The animal began to bark at the door, which the traveller opened, under the idea that he wanted to go out. Caniche instantly snatched up the

breeches, and away he flew. The stranger posted after him with his night-cap on, and literally *sans culottes*. Anxiety for the fate of a purse full of double Napoleons, of forty francs each, which was in one of the pockets, gave redoubled velocity to his steps. Caniche ran full speed to his master's house, where the stranger arrived in a moment afterwards, breathing and enraged. He accused the dog of robbing him. "Sir," said the master, "my dog is a very faithful creature, and if he has ran away with your breeches, it is because you have in them money which does not belong to you." The traveller became still more exasperated. "Compose yourself, Sir," rejoined the other, smiling; "without doubt there is in your purse a six-livre piece with such and such marks, which you picked up in the Boulevard St Antoine, and which I threw down there with a firm conviction that my dog would bring it back again. This is the cause of the robbery which he has committed upon you!" The stranger's rage now yielded to astonishment; he delivered the six-livre piece to the owner, and could not forbear caressing the dog which had given him so much uneasiness and such an unpleasant chase.

An animal so ready to obey its master's wishes, is easily taught to become not a recoverer of stolen goods, but the thief itself, and we are sorry to say, that as in sheep-stealing, so in stealing in general, the dog discovers not a little invention, and quickness of apprehending its precise position. There are many anecdotes might be collected of dogs that have been taught to steal. We shall present one. A gentleman residing in Edinburgh, having bought from a dealer a cocker bitch, was soon not a little annoyed, by her bringing to him articles of his neighbour's property. He soon perceived the systematic behaviour of the dog,—and putting the persons most concerned on their guard, he used to give his friends specimens of the manner in which she exercised her faculty. As soon as the master entered the shop, the dog seemed to avoid all appearance of recognising or acknowledging any connexion with him, but lounged about in an indolent, disengaged, and independent sort of manner, as if she had come into the shop of her own accord. In the course of looking over some wares, her master indicated by a touch on the parcel, and a look towards the Cocker, the goods which he desired she should appropriate, and then left the shop. The dog, whose watchful eye caught the hint in an instant, instead of

following her master out of the shop, continued to sit at the door, or lie by the fire, watching the counter, until she observed the attention of the people of the shop withdrawn from the prize which she wished to secure. Whenever she saw an opportunity of doing so, as she imagined, unobserved, she never failed to jump upon the counter with her fore-feet, possess herself of the gloves, or whatever else had been pointed out to her, and escape from the shop to join her master.

It is a well known fact, that dogs will seldom or never bite infants, even though beaten or abused by them. It seems especially to take charge of them, is diligent in its searches for them, and generally successful in recovering them when lost. There is an anecdote, very commonly told of a Frenchman, who had a plantation near the Blue-mountains, in the state of New York—and there lost his child, which after a long and extensive, but vain search, was recovered by the generosity of an Indian, who, accidentally hearing their distress, sent his dog Oniah, which after a quest, returned with a face of joy, and then led them to the child.

A shepherd on the Grampian mountains, having left his child at the foot of a hill, was soon enveloped in mist ; and unable to return to the precise place, he could not discover the child. In vain he searched for it in the midst of the mist, not knowing whither he went, and when at length the moon shone clearly, he found himself at his cottage, and far from the hill. He searched in vain next day, with a band of shepherds. On returning to his cottage, he found that the dog, on receiving a piece of cake, had instantly gone off. He renewed the quest for several days, and still the dog had disappeared, during the interval taking with it a piece of cake. Struck with this circumstance, he remained at home one day, and when the dog, as usual, departed with his piece of cake, he resolved to follow him. The dog led the way to a cataract at some distance from the spot where the shepherd had left his child. The banks of the water-fall almost joined at the top, yet separated by an abyss of immense depth, presented that abrupt appearance which so often astonishes and appals the traveller amidst the Grampian mountains. Down one of these rugged and almost perpendicular descents the dog began, without hesitation, to make his way, and at last disappeared in a cave, the mouth of which was almost upon a level with

the torrent. The shepherd with difficulty followed; but, on entering the cave, what were his emotions, when he beheld his infant eating with much satisfaction the cake which the dog had just brought him, while the faithful animal stood by, eyeing his young charge with the utmost complacence. From the situation in which the child was found, it appears that he had wandered to the brink of the precipice, and either fallen or scrambled down till he reached the cave, which with the dread of the torrent had afterwards prevented him from quitting. The dog, by means of his scent, had traced him to the spot, and afterwards prevented him from starving by giving up to him his own daily allowance. He appears never to have quitted the child by night or day, except when it was necessary to go for its food, and then he was always seen running at full speed to and from the cottage.

The memory of the dog Gelert has been preserved by tradition, and celebrated by poetry. In the neighbourhood of a village at the foot of Snowden, a mountain in Wales, Llewellyn, son-in-law to King John, had a residence. The king, it is said, had presented him with one of the finest greyhounds in England, named Gelert. In the year 1205, Llewellyn one day on going out to hunt called all his dogs together, but his favourite greyhound was amissing, and nowhere to be found. He blew his horn as a signal for the chase, and still Gelert came not. Llewellyn was much disconcerted at the heedlessness of his favourite, but at length pursued the chase without him. For want of Gelert the sport was limited; and getting tired he returned home at an early hour, when the first object that presented itself to him at the castle gate was Gelert, who bounded with the usual transport to meet his master, having his lips besmeared with blood. Llewellyn gazed with surprise at the unusual appearance of his dog. On going into the apartment where he had left his infant son and heir asleep, he found the bed-clothes all in confusion, the cover rent, and stained with blood. He called on his child, but no answer was made, from which he hastily concluded that the dog must have devoured him; and, giving vent to his rage, plunged his sword to the hilt in Gelert's side. The noble animal fell at his feet, uttering a dying yell which awoke the infant, who was sleeping beneath a mingled heap of the bedclothes, while beneath the bed lay a great wolf covered with gore, whom

the faithful and gallant hound had destroyed. Llewellyn, smitten with sorrow and remorse for the rash and frantic deed which had deprived him of so faithful an animal, caused an elegant marble monument, with an appropriate inscription, to be erected over the spot where Gelert was buried, to commemorate his fidelity and unhappy fate. The place to this day is called Bet h-Gelert, or the Grave of the Greyhound.

Here never could the spearmen pass,
Or forester unmoved,
Here oft the tear-besprinkled grass
Llewellyn's sorrow proved.
And here he hung his horn and spear,
And oft as evening fell,
In fancy's piercing sounds would hear
Poor Gelert's dying yell.*

It is well known that the horse, the ass, and even the cow, voluntarily return from a great distance to the place of their usual residence, and that they discover a remarkably acute instinct in finding the way,—the same power is possessed by the dog in still greater perfection, and exercised by it in searching for its master. A young gentleman from Glasgow, making the tour of the continent, was drowned while bathing in the river Oder, and a Newfoundland dog which he possessed, after vainly attempting to save him, found its way either to Frankfort or Hamburgh,—got on board a vessel to some part of the English coast, (for on inquiry it was not found to have landed at Leith,) and from thence it proceeded to the person from whom it had been originally purchased, and who resided near Holyroodhouse. Lord Maynard lately lost a Dalmatian or coach-dog in France, which he found at his house on his return to England, though how it had got there he never could trace. It is not necessary that the dog have previously travelled the ground by which it returns. A person who went by sea from Aberdeen to Leith, lost his dog at the latter place, and found it on his return at Aberdeen. It must have travelled over a country unknown to it, and have crossed the firths of Forth and Tay. The following is also a remarkable case. A greyhound bitch was sent from Edinburgh by a carrier to Castle Douglas, where she had pups,

* Spencer.

and in the following year, by a quite different route she was conveyed to Cumnock. After remaining there for about six months, she set off across the country to Castle Douglas, where she had reared her pups, and was seen on her progress accompanied by a pointer dog, which as soon as she had arrived at her place of destination left her and returned.

It will be inferred from the last of the above anecdotes, that the bitch had in some way commanded the assistance of the pointer to serve as her pilot. How a dog can make communication of its wishes on such a nice point to another dog, it is difficult exactly to specify, but that they do communicate with one another, is very evident from many examples. A dog which had got its leg, when broken, set by a surgeon, appeared one day at his door in company with another dog, which had met with a similar accident. It must have found its companion in distress, and obtained its compliance to accompany it to the surgeon. At Horton in Buckinghamshire about 1818, a gentleman from London took possession of a house, bringing with him a large French poodle to serve as a watch-dog. Its office had been formerly discharged by a Newfoundland dog, which was taken by the former tenant to a farm about half a mile off, but a puppy of the same breed was left behind, and met with incessant persecution from the French poodle. At length he was one day missing for some hours, he returned accompanied with his old friend; and the two immediately fell upon the poodle, and killed him before he could be rescued from their fury. In this case, the injuries of the young dog must have been made known to his friend, a plan of revenge concerted, and the determination to carry that plan into effect,—formed and executed with equal promptitude.

The dog, though its chief regards are bestowed on man, and though at his suggestion, or in maintaining the charge with which it is intrusted, it will instantly attack another dog, is nevertheless naturally very affectionate to its own kind. In the wild state they hunt in packs; even when tame they mutually encourage one another in the chase, and assist in the attack. A greyhound in the county of Stirling, used to carry a large iron collar attached to the neck of a pointer, for the purpose of preventing disorderly hunting. When the pointer started prey, the greyhound let the collar fall, and after the chase was ended, returned to serve the pointer as usual. A strange dog that wandered in

the vicinity of a farm-house at Bannockburn, was observed to be fed by one of the dogs of the house, with food which it saved from its own allotment for this purpose. A Newfoundland dog has been seen to save from drowning, one of a species less adapted to swimming. A spaniel bitch having been shot by a game-keeper in Mr Drake's woods near Amersham, one of her offspring lay down by her side, there remained till removed, and even then continued to decline, and died in six weeks.

To other species of animals the dog has been known to extend its affections. A pointer which had killed a gander, was chastised for the offence, and had the dead bird tied round its neck. The goose was disconsolate for the loss of her mate, at first continually persecuted the pointer, but afterwards formed a strict alliance with it, and the two fed out of the same trough, and lay on the same straw.* At Dunrobin castle in Sutherland, a seat of the Marchioness of Stafford, a terrier bitch, which had lost its own young, took a brood of ducklings under her protection, and nursed them with great care. They have even been known to become attached to cats.

On the other hand the dog has its antipathies: This is not merely that there are certain animals, such as the stag, the hare, &c., which it pursues for food, but some for which it has a distinct and peculiar aversion. Whether it be such an antipathy, or a preference to the flesh of the animal, certain it is that the Newfoundland dog is an implacable enemy of sheep, and that though very obedient in other respects, it will take every opportunity of secretly attacking and killing these innocent animals. But the principal antipathy of the dog, and one which is possessed by the whole species, is towards the cat. A good illustration of this may be drawn from the following notice by Hogg. There was not a day and scarcely an hour passed over, that the family did not get some amusement with these two animals. Whenever the dog was within doors, his whole occupation was watching and *pointing* the cat from morning to night. When she flitted from one place to another, so did he in a moment; and then squatting down, he kept his *point* sedulously, till he was either called off or fell asleep. He was an exceedingly poor taker of meat, was always to press to it, and always lean, and often he

* Montague's Supplement to his Ornithological Dictionary.

would not take it till we were obliged to bring in the cat. The malicious looks that he cast at her from under his eyebrows on such occasions were exceedingly ludicrous, considering his utter incapacity of wronging her. Whenever he saw her, he drew near his bicker and looked angry, but still he would not taste till she was brought to it, and then he cocked his tail, set up his birses, and began a-lapping furiously in utter desperation. His good nature was so immoveable, that he would never refuse her a share of what he got ; he even lapped close to the one side of the dish, and left her room,—but how he did ply !

The following anecdote distinctly proves, what many observations would lead us to suppose, that the dog is actuated by the remembrance of injuries, or the spirit of revenge. A blacksmith of the name of Smith, at Stirches, near Hawick, had a large Mastiff, which generally lay on the smithy hearth in cold weather. One evening a farmer's servant in the neighbourhood, who had come for some plough-irons which were repairing, gave the dog a kick, and possessed himself of his place on the warm stones. The Mastiff, in the meantime, only looked sulky at him, and lay down at the door, but when the man went away with his plough-irons on his shoulders, the dog followed him, and, at the distance of sixty yards from the smithy, flew upon him, and, seizing him by the collar, brought him to the ground. He offered him no personal injury, but treated him in a manner which strongly indicated his sovereign contempt for the delinquent.

A certain degree of gratitude may be supposed to be included in the attachment of the dog to its master, but that it is capable of this feeling apart from such circumstances, cannot be disputed. Two near neighbours in the county of Suffolk, a tanner and a farmer, entertained great friendship for each other, and kept up a close intimacy by frequent visits. The tanner had a large Band-Dog for watching his yard, which, from some unknown cause, had conceived such an inveterate hatred to the farmer, that he could not go with safety to call on his friend when the dog was loose, and on this account the tanner loaded him with a heavy clog, that he might not be able to fly at him. As the farmer and one of his ploughmen were going about the grounds together one day, they perceived the tanner's dog, which, in attempting to leap a wall, had left the clog on the other side, and was thereby

almost strangled. The boy, knowing the enmity which the dog had to his master, proposed to despatch him by knocking him on the head; but the latter was unwilling to kill a creature which he knew was useful to his friend. Instead of doing so, he disengaged the poor beast, laid him down on the grass, watched till he saw him recover so completely as to be able to get up on his legs, and then pursued his walk. When the farmer returned to the stile, he saw the dog standing by it, quite recovered, and expected an attack; but, to his great astonishment, the creature fawned upon him, and expressed his gratitude in the most lively manner; and from that time to the day of his death he attached himself to his benefactor, and never could be prevailed upon to go back to his former master.

The dog, it is well known, has a great aversion to any of its species which are seized with hydrophobia. The late celebrated Dr James relates the following anecdote, as proving the quickness of their apprehension, in discerning the presence of that malady. A man who used to come every day to the Doctor's house, was so beloved by three Cocker Spaniels which he kept, that they never failed to jump into his lap, and caress him the whole time he staid. It happened that this man was bitten by a mad dog, and the very first night he came under the influence of the distemper, they all ran away from him to the very top of the garret stairs barking and howling, and showing all the other signs of distress and consternation. The man was cured, but the dogs were not reconciled to him for three years afterwards.

Hydrophobia most commonly affects dogs in the warmer seasons of the year, and yet Mr Barrow says that this disease is unknown in South Africa. Perhaps the change from cold to heat, may produce an effect on the system of the animal, which does not flow from a more equable, though warmer climate. As this malady is the severest with which perhaps any animal is visited, and often an object of much apprehension to man himself, we cannot conclude our notices of the dog, without subjoining the description furnished by Chaussier and Orfila, who have written a scientific work on this disorder: "A dog at the commencement of madness is sick, languishing, and more dull than usual. He seeks obscurity, remains in a corner, does not bark, but growls continually at strangers, and, without any apparent cause, refuses to eat or drink. His gait is unsteady, nearly resembling that

of a man almost asleep. At the end of three or four days he abandons his dwelling, roving continually in every direction : he walks or runs as if tipsy, and frequently falls. His hair is bristled up ; his eyes haggard, fixed, and sparkling ; his head hangs down ; his mouth is open and full of frothy slaver ; his tongue hangs out ; and his tail between his legs. He has, for the most part, but not always, a horror of water, the sight of which seems, generally, to redouble his sufferings. He experiences from time to time transports of fury, and endeavours to bite every object which presents itself, not even excepting his master, whom indeed he begins not to recognise. Light and lively colours greatly increase his rage. At the end of thirty or thirty-six hours he dies in convulsions."

THE WOLF.

THE wolf possessing powers very similar to those of the dog, directs them as much to savage and lawless purposes, as the other yields them to the service of his master. Its form, though kindred to that of the dog, is marked by the ferocity of its nature. Its eyes in an oblique position, are expressive of malignity and fierceness, and the pendulous manner in which it hangs its tail, gives intimation of the unjust nature of its purposes, and of the cruel manner in which it pursues them. It is no less implacably hostile to man than the dog is naturally a friend. The two indeed seem not only to be different in their dispositions, but to have a peculiar enmity to one another. This has been often observed, and is proved by the following circumstances, recorded in Broke's Travels, as happening in the north of Sweden : " I observed, on setting out from Sormjole, the last post, that the peasant who drove my sledge was armed with a cutlass ; and, on inquiring the reason, was told that, the day preceding, while he was passing in his sledge the part of the forest we were then in, he had encountered a wolf, which was so daring, that it actually sprung over the hinder part of the sledge he was driving, and attempted to carry off a small dog which was sitting behind him. During my journey from Tornea to Stockholm, I heard everywhere of the ravages committed by wolves,

not upon the human species or the cattle, but chiefly upon the peasants' dogs, considerable numbers of which had been devoured. I was told that these were the favourite prey of this animal; and that, in order to seize upon them with the greater ease, it puts itself into a crouching posture, and begins to play several antic tricks, to attract the attention of the poor dog, which, caught by these seeming demonstrations of friendship, and fancying it to be one of his own species, from the similarity, advances towards it to join in the gambols, and is carried off by its treacherous enemy. Several peasants that I conversed with mentioned their having been eye-witnesses of this circumstance."

Wolves vary considerably in colour and size, according to the species and variety. They are natives of every quarter of the globe, are possessed of great strength, and are most ferocious in their disposition; associating in large packs, often spreading desolation in the districts they invade;

By wintry famine roused, from all the tract
Of horrid mountains, which the shining Alps,
And wavy Apennine, and Pyrenees,
Branch out stupendous into distant lands,
Cruel as death! and hungry as the grave!
Burning for blood! bony, and gaunt, and grim!
Assembling wolves in raging troops descend;
And pouring o'er the country, bear along,
Keen as the north wind sweeps the glossy snow—
All is their prize.*

Their habits, however, accommodate to circumstances. In Canada, the wolves are in sufficient numbers through all parts, but they are sly and cowardly, for there are enough of deer, and other smaller animals to appease their hunger, and moderate their ferocity. When they are met with there, it is generally singly, or in small parcels of two or three together trotting sluggishly along.† On the other hand, in desert regions they are savage and bold, and attack man himself. "In the course of the afternoon," says Park, "Lawrence Cahill came up, but William Hall, who had gone into a ruined hut near the road, and who did not appear to be very sick, did not arrive; suspected that he

* Thomson's Winter.

† Head's Journey through Canada. For some notices of the habits of wolves in America, see notes to Goldsmith's Nat. Hist. vol. ii. p. 236—238.

might be killed by the wolves in the hut, during the night. At sunset had all the asses properly tied near the huts, and watched myself with the sentries all night, as the wolves kept constantly howling round us.”* 1

The following is a striking instance of the cruelty of the wolf, and of a still more uncommon want of natural affection in a mother. It occurred in Russia some years ago, and is related by Mr Lloyd, on the authority of a gentleman attached to the embassy at St Petersburg;—“A woman, accompanied by three of her children, was one day in a sledge, when they were pursued by a number of wolves. On this she put the horse to a gallop, and drove towards her home, from which she was not far distant, with the utmost possible speed. All, however, would not avail; for the ferocious animals gained upon her, and at last were on the point of rushing on the sledge. For the preservation of her own life, and that of the remaining children, the poor frantic creature now took one of her babes, and cast it a prey to her bloodthirsty pursuers. This stopped their career for a moment; but, after devouring the little innocent, they renewed the pursuit, and a second time came up with the vehicle. The mother, driven to desperation, resorted to the same horrible expedient, and threw her ferocious assailants another of her offspring. To cut short this sad story, a third child was sacrificed in a similar manner. Soon after this, the wretched being reached her home in safety. Here she related what had happened, and endeavoured to palliate her own conduct, by describing the dreadful alternative to which she had been reduced. A peasant, however, who was among the bystanders, and heard the recital, took up an axe, and, with one blow, cleft her skull in two, saying, at the same time, that a mother, who could thus sacrifice her children for the preservation of her own life, was no longer fit to live. This man was committed to prison, but the Emperor subsequently gave him a pardon.”†

On the 10th of January, 1830, a frightful event spread terror throughout the neighbourhood of Eux-Bonnes, in the department of Basses Pyrenees:—The curate of the little village of Atra, situated on the mountain, was returning home on horseback, after administering the sacrament, when he was surround-

* Park's Second Journey, p. 168.

† Field Sports in the North of Europe, vol ii. p. 173.

ed by wolves, which precipitated themselves upon him and the horse with all the ferocity occasioned by hunger. A number of bones, and fragments of flesh, which were strewed about, as well as the traces of blood, with which the snow was crimsoned, left no doubt of the horrible fate of the unfortunate clergyman. Hunger, which gives an unusual ferocity to all savage animals, drives the wolf to unparalleled acts of devastation. In the mountainous tracts of Switzerland, when the ground is covered with snow, and the wolves are deprived of their usual prey, they unite in large companies, and carry destruction among all animals, and attack companies of men themselves. In the commencement of the reign of Louis XIV. in the depth of winter, and of the snows, a large party of dragoons were attacked near Pontharlier, at the foot of the mountains of Jurat, by a multitude of wolves : the dragoons fought bravely, and killed many hundreds of them ; but at last, overpowered by numbers, they and their horses were all devoured. A cross is erected on the place of combat, with an inscription in commemoration of it, which is to be seen at this day.

But though fierce in its nature, many instances may be brought to prove that the wolf is incapable of a brave defence. Mr Lloyd, whom we have already quoted, relates that a peasant near St Petersburg, when one day in his sledge, was pursued by eleven of these ferocious animals. At this time he was only about two miles from home, towards which he urged his horse at the very top of his speed. At the entrance to his residence was a gate, which happened to be closed at the time ; but the horse dashed this open, and thus himself and his master found refuge within the court-yard. They were followed, however, by nine out of the eleven wolves ; but, very fortunately, at the instant these had entered the enclosure, the gate swung back on its hinges, and thus they were caught as in a trap. From being the most voracious of animals, the nature of these beasts—now that they found escape impossible—became completely changed : so far indeed from offering molestation to any one, they slunk into holes and corners, and allowed themselves to be slaughtered almost without making resistance.

Yet though the wolf be thus naturally savage, it has been in some cases domesticated. These, however, may rather be considered as triumphs of the art of man, than proofs of a relenting

nature in the wolf. Even when domesticated, it is dangerous. One which was kept tame by the Duke of Wirtemberg, in the castle of Louisburg, without provocation, bit a piece out of an officer's cheek.

The wolf has even been broken to the harness. In the summer of 1824, for upwards of six months, a calash might be occasionally seen in the streets of Munich, drawn by two enormous wolves, which a merchant at St Petersburg had found very young in a wood near Wilna, and tamed to this service. They were very obedient, and had lost the ferocious aspect of the species.

M. F. Cuvier gives a very interesting account of a tame wolf which had all the obedience towards, and affection for, his master, that the most sagacious and gentle of domestic dogs could possibly evince. He was brought up in the same manner as a puppy, and continued with his original owner till he was full grown. He was then presented to the Menagerie at Paris. For many weeks he was quite disconsolate at the separation from his master, who had been obliged to travel; he would scarcely take any food, and was indifferent to his keepers. At length he became attached to those about him, and he seemed to have forgotten his old affections. His master returned, after an absence of eighteen months; the wolf heard his voice amidst the crowd in the gardens of the Menagerie, and being set at liberty, displayed the most violent joy. Again was he separated from his friend; and again was his grief as extreme as on the first occasion. After three years' absence his master once more returned. It was evening, and the wolf's den was shut up from any external observation; yet the instant the man's voice was heard, the faithful animal set up the most anxious cries: and the door of his cage being opened, he rushed toward his friend—leaped upon his shoulders—licked his face—and threatened to bite his keepers, when they attempted to separate them. When the man left him, he fell sick, and refused all food; and from the time of his recovery, which was long very doubtful, it was always dangerous for a stranger to approach him. He appeared as if he scorned any new friendships.

There is now in the menagerie of the *Jardin des Plantes*, at Paris, a black wolf. He was brought when very young, and presented to Baron Cuvier's step-daughter, Mademoiselle De-

vousel, who, finding him so tame, desired he might have a dog as a companion, and be fed entirely on broth and cooked meat. Her orders have been obeyed, and the animal retains all his gentleness and docility. He never sees her but he stretches his paws through the bars to be shaken; and, when she lets him loose, he lies down before her, licks her feet, and shows every mark of joy and affection.

The wolf, however, is scarcely ever to be trusted as a friend; and the exertions of mankind have been directed to the extirpation of an animal, of which the subjugation was so hopeless a task. From its presence England, Scotland, and Ireland have been successively delivered, the last more than a century ago. In those countries in which they are still to be found, it is frequently necessary for the inhabitants to unite, for diminishing the numbers of an animal which they cannot extirpate. In the year 1830, the wolves driven by the cold and hunger from their haunts in the Pyrennees, having spread themselves in vast bands over the country, orders were given at Pau, by the prefect of the department, for a general battue, or chase, on the 22d of January. The country magistrates having received the instructions requisite for this chase, set out accordingly, accompanied by all and sundry, on the general pursuit, and relieved the extensive district from these dangerous visitors, by killing many, and driving the rest to their native fastnesses.

THE FOX.

WHILE the wolf has been industriously destroyed by man wherever his power is complete, the fox still remains in our country as almost the only specimen of a strong and savage animal in its wild state. For this exception in its favour, it seems to be indebted partly to its own habits and cunning, and partly to the light in which it is held by man. Its sly and solitary manners, its abode in the earth, and generally in a place singularly adapted to its self-preservation, its caution, and its swiftness, must all be enumerated as causes of preservation, which it possesses in itself. The passion for the chase of the fox which has so long prevailed in the country, while it has led

to the persecution of the animal, has rendered its total extirpation undesirable to those gentlemen to whom its pursuit is a favourite sport.

It is also in favour of the fox, that it seeks its prey singly, not like the wolf, associating in packs, so formidable as to render its destruction indispensable to safety. The habits of the fox, however, are strictly predatory, and if the country gentleman seeks its preservation for the chase, the farmer as earnestly seeks its destruction, as the determined enemy to his poultry, and the other defenceless domestic animals. The fox generally fixes his habitation near some farm or village, committing great depredations in the poultry yards. The prey which he there finds is his favourite diet, but when these fail, he will destroy serpents, lizards, toads, moles, frogs, rats, and mice : and, when extremely pressed by hunger, he will feed on roots, and other vegetable substances ; but this is a last shift with him. He is known to eat crabs, shrimps, or other shell-fish. He is also said by Buffon to be fond of honey, and will boldly attack hives and wild bees' nests, frequently robbing them of their stores—but not always with impunity, for these little warriors are ever ready to defend their castles, from whence they issue, and, fastening on the invader, force him to retire. Frequently a number stick to his back, of which he rids himself by rolling upon the ground, and crushing them to death, when he returns to the charge, and devours both wax and honey.

The fox will either run down his prey, or sometimes slip cautiously forward like a cat, trailing his body on the ground, and then make a sudden bound at his booty, seldom missing his aim. This he either hides among bushes or herbage, or carries off to his burrow. In this manner, he returns repeatedly to his work of destruction, and generally keeps a considerable stock of provisions in store, but always in different places, to serve him in time of need. It is seldom, however, that he prolongs his excursions after the sun has risen.

The cunning of the fox is that which has rendered it most remarkable among the animals. For this quality, it is universally proverbial. Its fame may have exceeded the reality, but it has its foundation in truth. The figure and appearance of animals give us a pretty correct notion of their qualities, and the form, the eye, the whole expression, and carriage of the fox, mark it

out as the most cunning among quadrupeds. Nor do its habits fall beneath the promise of its look—all its endeavours, whether directed against the life of other creatures, or for the preservation of its own, show the same mixture of slyness and determination. The abode of which it makes choice for its young, the provision of prey which it there lays up, the selection of houses on which it makes its predatory attacks, so as to prevent the suspicion of its real residence, are instances of a foresight and caution peculiar to itself. But in this case, as in that of all remarkable animals, fable has added as much to the popular opinion as fact. Perhaps not one in ten of the following statements, made by Olaus Magnus, Archbishop of Upsal,* can be received as authentic—"When the fox is pressed with hunger, cold, and snow, he will come near houses and bark like a dog, which brings the domestic animals about him, some of whom he makes his prey. Sometimes he will feign himself dead, lying on his back, drawing in his breath, and lolling out his tongue. Sometimes when hungry, he will roll himself in red earth, and make himself appear as if killed and bloody, birds coming down to feed on his carcass, are snapped up unawares. To avoid the prickles of the hedgehog, he will throw him on his back. Sometimes meeting a multitude of wasps, he hides his body all but his tail, and when they are entangled in it, he will come out and rub them against a stone or a tree till they are quite dead. Much in the same manner he catches crabs and small fish. How he gets rid of his fleas is well known. Sometimes he will play with a hare; but this animal often escapes him by its quickness. Sometimes the fox has been known to escape as a dog, by barking; but he most certainly escapes his enemies when he hangs himself by a bough, and makes the dogs loose scent. He is also wont to deceive the hunter when he runs amongst a herd of goats, or sometimes by leaping upon a goat, which runs with him on its back up inaccessible heights. If fastened after being taken, he will sometimes bite off his foot and get away. But if no other way remains, he will, when taken out of the snare, feign himself dead. I once saw on the rocks of Norway a fox with a huge tail, who brought many crabs out of the water and then ate them. And that is no rare sight, as no fish will stick to a

* Sporting Magazine, vol. xlv. p. 60.

bristly thing let down into the water like crabs. Persons troubled with the gout are cured in these northern countries by the warm skin of the fox bound upon the part affected, or by anointing themselves with its fat."

In the same spirit we are told by Pontoppidan, that when a fox observes an otter enter the water to fish, he will place himself behind a stone or a bush, and there lie concealed till he sees the otter safely on shore with his prey, when he makes a violent spring at the booty, which generally surprises and frightens the otter so much, that he rushes into the water, leaving the fish behind him.

Not a few well-authenticated instances, however, might be produced, to show that the general belief of the extraordinary cunning of the fox is well founded. In the autumn of the year 1819, at a fox-chase in Galloway, a very strong fox was hard run by the hounds. Finding the danger he ran of being taken, reynard made for a high wall at a short distance, and, springing over it, crept close under the other side: the hounds followed him; but, no sooner had they leapt the wall, than he sprang back again over it, and, by this cunning device, gave them the slip, and got safe away from his pursuers. Mr Hawkins, of Pittsfield, an American gentleman, accompanied by two blood-hounds, found a fox, and pursued him for nearly two hours, when, suddenly, the dogs appeared at fault. Mr Hawkins came up with them near a large log of wood lying on the ground, and felt much surprise at their making a circuit of a few roods without any object in view, every trace of reynard seeming to have been lost, while the dogs still kept yelping. On looking about him, he discovered the fox stretched upon the log, apparently lifeless. Mr Hawkins made several unsuccessful efforts to direct the attention of the dogs towards the place. At length, he approached so near the artful object of his pursuit, as to see him distinctly breathe. Even then, reynard exhibited no alarm, and Mr Hawkins, seizing the branch of a tree that lay hard by, aimed a blow at him, which the fox evaded by a leap from his singular lurking place, having thus for a time effectually eluded the observation of his enemies.

The following is one of the many dexterous artifices, to which with various success, the fox in time of danger has recourse. On the 28th of October, 1815, the hounds belonging to the

Newry Hunt started a fox at Tamary. After a short chase, reynard disappeared, having cunningly mounted a turf stack, on the top of which he lay down flat. Finding himself, at last, perceived by one of the hounds, he left his retreat, closely pursued by the pack. Being again hard pressed, he ran up a stone wall, from which he sprang on the roof of an adjoining cabin, and mounted up to the chimney-top. From that elevated situation he looked all around him, as if carefully reconnoitring the coming enemy. A cunning old hound approached, and, having gained the summit of the roof, had already seized the fox in imagination, when, lo ! reynard dropped down the chimney, like a fallen star into a draw-well. The dog looked wistfully down the dark opening, but dared not pursue the fugitive. Meantime, whilst the hound was eagerly inspecting the smoky orifice of the chimney, reynard, half enrobed in soot, had fallen into the lap of an old woman, who, surrounded by a number of children, was gravely smoking her pipe, not at all expecting the entrance of this abrupt visitor. "Emiladh deouil !" said the affrighted female, as she threw from her the black and red quadruped : Reynard grinned, growled, and showed his fangs ; and when the sportsmen, who had secured the door, entered, they found him in possession of the kitchen, the old woman and the children having retired, in terror of the invader, to an obscure corner of the room. The fox was taken alive by William Gordon of Sheepbridge, Esq.

As to the other qualities common to most wild animals, such as affection for their offspring, and increased courage in their defence, they are possessed in a considerable perfection by the fox. Sometimes when pursued, the fox will take up her cub in her mouth and fly with it till exhaustion and terror overcome maternal affection. When attacked with her offspring in her habitation under ground, she will fight with the strongest terrier, with a determined if not successful ferocity. Though a solitary animal, it is known to manifest an interest in one of its own species. On one occasion, two foxes resisted the attempt of a person to pass by a certain road, with great fierceness, nor could he perceive the reason, till having procured assistance, and driven them away, he found a little further onward a third fox, which they doubtless wished to defend, it having got so entangled among some branches of a tree, as to be unable to extricate itself.

THE JACKAL AND ISATIS.

THE Jackal is the wolf of Eastern countries, as the Isatis is the fox of the North. Bruce remarks that Deeb, or Deep is a name in Arabic given to the hyæna, the jackal and the wolf, a fact of itself sufficient to show the confusion which must exist in their ideas of these animals. Yet they are very distinct from one another, the hyæna being solitary in its habits, and the jackal hunting in large packs. In Barbary and Syria, the jackals are heard howling and shrieking in great numbers, in the evening and morning. Their cry is dreadful, and resounding through the desert, has the effect of arousing the duller, but more powerful beasts of prey, from which circumstance chiefly, the jackal has been termed the lion's provider. The isatis resembles the fox, and is a native of the coldest climates, but neither the isatis nor the jackal furnish, beyond the simple characteristics which are noticed in the history, any peculiar traits, as the subject of anecdote.

 THE HYÆNA.

OF the Hyæna, there are two species, the striped and the spotted, the former a native of Northern, the latter of Southern Africa. These species have been accurately distinguished in the notes to the Natural History.

The striped hyæna is a most ferocious animal, and though taken young, can never be rendered tame. * It generally seeks its prey during the night ; during the day it resides in its den, which is generally some cavern, or cleft in a mountain, or a hole dug by itself. The cry of the hyæna is very peculiar and dismal ; its commencement is somewhat like the moaning of a human being, and ends like a person making a violent and strained effort to vomit. As Bruce seems to have rightly estimated his opportunities for describing this animal, we shall quote his remarks on its habits.* " I do not think there is any one that has hitherto written of this animal, who ever saw the thousandth

* Bruce's Travels, vol. vii. p. 213.

part of them that I have. They were a plague in Abyssinia in every situation, both in the city and in the field, and I think surpassed the sheep in number. Gondar was full of them from the time it turned dark till the dawn of the day, seeking the different pieces of slaughtered carcases which this cruel and unclean people expose in the streets without burial; and who firmly believe that these animals are Falasha from the neighbouring mountains, transformed by magic, and come down to eat human flesh in the dark in safety. Many a time in the night, when the king had kept me late in the palace, and it was not my duty to lie there, in going across the square from the king's house, not many hundred yards distant, I have been apprehensive they would bite me in the leg. They grunted in great numbers about me, though I was surrounded with several armed men, who seldom passed a night without wounding or slaughtering some of them. One night in Maitsha, being very intent on observation, I heard something pass behind me towards the bed, but upon looking round could perceive nothing. Having finished what I was then about, I went out of my tent, resolving directly to return, which I immediately did, when I perceived large blue eyes glaring at me in the dark. I called upon my servant with a light; and there was the hyæna standing nigh the head of the bed, with two or three large bunches of candles in his mouth. To have fired at him, I was in danger of breaking my quadrant or other furniture; and he seemed, by keeping the candles steadily in his mouth, to wish for no other prey at that time. As his mouth was full, and he had no claws to tear with, I was not afraid of him, but with a pike struck him as near the heart as I could judge. It was not till then he showed any sign of fierceness; but, upon feeling his wound, he let drop the candles, and endeavoured to run up the shaft of the spear to arrive at me; so that, in self-defence, I was obliged to draw out a pistol from my girdle and shoot him, and nearly at the same time my servant cleft his skull with a battle-axe. In a word, the hyæna was the plague of our lives, the terror of our night-walks, the destruction of our mules and asses, which above all others are his favourite food. He stands ill upon his hind-legs, nor can his measure then be marked with precision. It is observable in all hyænas, that when they are first dislodged from cover, or obliged to run, they limp so remarkably, that it would appear the hind-leg was brok-

en, and this has often deceived me ; but, after they have continued to run some time, this affection goes entirely away, and they move very swiftly. To what this is owing it is impossible for me to say. I expected to have found something likely to be the origin of it in the dissection of this animal given by M. de Buffon ; but no such thing appears, and I fear it is in vain to look for it elsewhere. Hyænas are not gregarious, though they troop together upon the smell of food. We have no reason to attribute extraordinary wisdom to him ; he is, on the contrary, brutish, indolent, slovenly, and impudent, and seems to possess much the manners of the wolf. His courage appears to proceed from an insatiable appetite, and has nothing of the brave or generous in it, and he dies oftener flying than fighting.

“ In Barbary I have seen the Moors in the day-time take this animal by the ears, and pull him towards them, without his attempting any other resistance than that of his drawing back : and the hunters, when his cave is large enough to give them admittance, take a torch in their hand, and go straight to him ; when, pretending to fascinate him by a senseless jargon of words which they repeat, they throw a blanket over him, and haul him out. He seems to be stupid or senseless in the day, or at the appearance of strong light, unless when pursued by the hunters. I have locked up a goat, a kid, and a lamb, with him all day when he was fasting, and found them in the evening alive and unhurt. Repeating the experiment one night, he ate up a young ass, a goat, and a fox, all before morning, so as to leave nothing but some small fragments of the ass's bones. In Barbary, then, he has no courage by day ; he flies from man, and hides himself from him : but in Abyssinia or Atbara, accustomed to man's flesh, he walks boldly in the day-time like a horse or mule, attacks man wherever he finds him, whether armed or unarmed, always attaching himself to the mule or ass in preference to the rider. I may safely say, I speak within bounds, that I have fought him above fifty times hand to hand, with a lance or spear, when I had fallen unexpectedly upon him among the tents, or in defence of my servants or beasts. Abroad, and at a distance, the gun prevented his nearer approach ; but in the night, evening, or morning, we were constantly in close engagement with him.

“ I have oftentimes hinted, in the course of my travels, at the liking he has for mules and asses ; but there is another passion

for which he is still more remarkable, that is, his liking to dog's flesh, or, as it is commonly expressed, his aversion to dogs. No dog, however fierce, will touch him in the field. My greyhounds, accustomed to fasten upon the wild boar, would not venture to engage with him. On the contrary, there was not a journey I made that he did not kill several of my greyhounds, and once or twice robbed me of my whole stock: he would seek and seize them in the servants' tents where they were tied, and endeavour to carry them away before the very people that were guarding them."

Mr Barrow, in his *Travels in Southern Africa*, says,—“The cadaverous crocuta, or spotted hyæna, has lately been domesticated in the Snewberg, where it is now considered one of the best hunters after game; and as faithful and diligent as any of the common sorts of domestic dogs.” Bishop Heber mentions having seen one in India, in the possession of Mr Traill, which followed him about like a dog, and fawned on those with whom he was acquainted.

The spotted hyæna is said to have great muscular strength in his neck, which seems to be confirmed by the following anecdote:—The den of a spotted hyæna, that was kept in the Tower about sixteen years ago, requiring some repairs, the carpenter completed them by nailing on the floor a thick oak plank, of seven or eight feet in length, with at least a dozen nails, each longer than the middle finger of the hand. At one end of this plank, however, there was a small piece left, that stood up higher than the rest; and the man, not having a proper chisel along with him to cut it off, returned to his shop for one. During his absence, some persons came in to see the animals, and the hyæna was let down by the keepers from the other part of the den. He had scarcely entered the place before he discovered the piece that was left at the end of the plank, and seizing it with his teeth, tore the plank completely up, drawing every nail with the utmost facility.

Mr Fringle says, that hyænas are the general scavengers of the country at the Cape, never failing to devour the refuse left by other beasts of prey, as well as their own species, when they find a dead one, while the flesh of the spotted hyæna is so rank and offensive, that no other beast of prey will come near it.

THE WEASEL KIND.

THIS class of animals are distinguished by the shortness of their legs, the long and firm texture of their bodies, the sharpness of their teeth, and the sanguinary nature of their dispositions. Slender in shape, and small in size, they wind their way amidst the underwood of the forest, and the loose stones of a wall, or insinuate themselves into the smallest openings into the barn, or the poultry house, in all cases carrying destruction to every animal less powerful than themselves. They are insidious in their attempts, eager and distrustful in their motions; they are enemies to all the weaker animals, and they justly suspect all the stronger of being enemies to them. The anecdotes respecting such a class must necessarily be little varied, and therefore need not be very numerous. Proofs of their love of blood, of their ferocity in attack, and of their irritable disposition, for the most part compose the annals of this small and cruel race.

The WEASEL, from which the class derives its name, and of whose form it generally partakes, is an active blood-thirsty little animal, not exceeding seven inches in length, from the nose to the tail. It is much about the same size as a rat, though more slender, but it is a mortal enemy to this animal, pursuing them to their holes, and killing them in great numbers. It is also often fatal to the hare, as it will either creep upon it when at rest, or lying unseen amidst rubbish or furze, will spring at its throat, where, as in the case of other animals which it kills, it fixes its bite, and then sucks the blood. In the same way it makes a hole in the ends of eggs, and sucks the contents; differently from the rat, which breaks the shell to pieces. It is a destruc-

tive enemy to pigeons, as it creeps into the holes of a dovecot in the evening, and surprises its prey while they are asleep ; and, from the peculiar construction of its body, there are few situations it is incapable of reaching, for it can clamber up an almost perpendicular wall. When it sees a man, it endeavours as quickly as possible to get out of the way, and hide itself amidst the grass or loose stones, but if trodden on, or seized, it will turn and bite like a serpent. An ordinary dog does not wish to attack it, for it instantly fixes itself on his lips.

Weasels seem to unite in many cases, for mutual defence, or the attack of man. In January, 1818, a labourer in the parish of Glencairn, Dumfriesshire, was suddenly attacked by six weasels, which rushed upon him from an old dyke in the field where he was at work. The man, alarmed at such a furious onset, instantly betook himself to flight, but he soon found he was closely pursued ; and, although he had about him a large horse-whip, with which he endeavoured, by several back-handed strokes, to stop them, yet, so eager was their pursuit, that he was on the point of being seized by the throat, when he luckily noticed at some distance the fallen branch of a tree, which he made for, and, hastily snatching it up, manfully rallied upon his enemies ; and had such success, that he killed three of them, and put the remaining three to flight. A similar case occurred about thirty years ago, at Gilmerton, near Edinburgh, when a gentleman, observing a person leaping about in an extraordinary manner, made up to him, and found him beset, and dreadfully bit, by about fifteen weasels, which continued their attack. Being both strong persons, they succeeded in killing a number, and the rest escaped, by flying into the fissures of a neighbouring rock. The account the person gave of the commencement of the affray was, that walking through the park, he ran at a weasel which he saw, and made several attempts to strike it, remaining between it and the rock to which its retreat lay. The animal being thus circumstanced, squeaked aloud, when an instantaneous sortie was made by the colony, and the attack commenced.

The weasel is exceedingly difficult to tame. When kept in a cage, it seems in a perpetual state of agitation, is terrified at the sight of all who approach to look at it, and generally endeavours to hide itself behind the straw, or other substances which may

be at the bottom of its cage. There are, however, instances on record of weasels being completely domesticated.*

The *STOAT*, or *Ermine*, is about three inches longer than the weasel, is similar in shape, but has a longer tail. It is very hairy, with a black tip; the edges of the ears, and ends of the toes, are yellowish white; in other respects, it perfectly resembles the weasel, both in colour and form, except in winter, when, in the northern parts of Europe, the fur changes to a pure white, except the tip of the tail, which retains its blackness through all seasons and climates. In its winter change, it has received the name of the *ermine*; and, in this condition, is much sought for, on account of the high value of its fur, which has been that worn by royalty from remote times. The stoat abounds in Norway, Lapland, Russia, and other northern latitudes, and forms a principal article of commerce in these states. It is found even so far north as Kamtschatka and Siberia, where the hunters take it in traps, baited with flesh. In Norway it is their practice, either to shoot the stoats with blunt arrows, or they are taken by traps made with two flat stones, one being propped up with a stick, to which is attached a baited string; and, as soon as the animal begins to nibble, the stone falls down, and crushes it to death. In Britain they also, sometimes, change to white in winter; but their skins are of little value, compared to those in northern Europe, having neither the same closeness nor whiteness of fur. The skins are sold, in the districts where they are caught, from two to three pounds sterling the hundred.

The stoat is an animal peculiarly fierce, and persevering in its attacks on its prey, as many anecdotes testify. In the *Sporting Magazine* for October, 1820, there is an etching of an incident proving this, that occurred to Mr Waring of Chepstead. While walking on his farm, his notice was attracted to a spot, by the cries of an animal which he found to be a rabbit just seized by a stoat. On his approach, the latter retired, and he took up the rabbit, but the stoat again returned, and while he held the rabbit by the hind legs, the fierce little animal made a spring at its former prey, upon which, Mr Waring lifting his weeding spud, destroyed the noxious creature. A singular circumstance was

* For an account of Mademoiselle de Laistre's tame weasel, and other notices of the animal; see notes to Gold. Nat. Hist. vol. ii. p. 260—262.

observed by a friend of the present vicar of Liskeard, in Cornwall, in August 1829: A stoat was in hot pursuit of a water rat, which took the water, where he, doubtlessly, expected to be safe from his enemy; the stoat, however, followed his prey across the narrow pond; but lost it, at last, from the rat getting into a hole.

Although it is a well known fact, that weasels, stoats, and their congeners, are very destructive to young game, yet the following well-authenticated instance of their depredations far surpasses any idea we could have formed upon the subject: About the middle of July, 1827, a gentleman at Cathcart shot at and wounded a stoat. The animal escaped into a hole in an old stone wall. He was induced to explore the place of its retreat, when the first victims he met with, were a couple of leverets, unmutilated; a little further on, two young partridges, also entire; and a pheasant's egg unbroken. Beyond these, were found the heads of two other leverets, in a state of putrefaction; and, at the extremity of the hole, lay the little mischievous marauder himself, dead. We would have thought this extraordinary accumulation of plunder was the consequence of a provident disposition in the animal; but from the appearance of the leveret's head, &c. it seems to bear out, what has been so often stated by naturalists of this tribe of animals, that they seldom devour any of their prey till it begins to putrefy.

The FERRET is larger than the stoat, of a whitish yellow colour, and red eyes. The Ferret is a native of Africa, and requires much care to preserve it alive in this country. It is kept for the purpose of dislodging rabbits from their warren, and has such a natural antipathy to these animals, that if a dead one be presented to a young ferret, though it has never seen a rabbit before, it will eagerly seize it. The ferret is also a great enemy to rats, and will not suffer one to remain alive, where it is allowed to go in search of them. Although easily tamed, it seldom evinces any attachment, and is readily irritated. They emit a very fetid odour, like all their tribe. Like the rest of the species, likewise, it is remarkable for the pertinacity with which it retains the bite, which it has once taken. This circumstance is illustrated by the following occurrence: A man, of the name of Isles, a bargeman, finding himself much incommoded by the repeated mischief done in his barge by rats, procured

a ferret to destroy them. The ferret remaining away a considerable time, he thought it was devouring some rats that it had killed, and went to sleep, but was awakened early next morning by the ferret who was commencing an attack upon him. The animal had seized him near his eyebrow; and the man, after endeavouring in vain to shake him off, at length severed the body from the head with a knife,—the latter still sticking so fast, as to be with difficulty removed.

The POLECAT or FOU MART, is a still larger animal, and not uncommon in our country. Its skin, when properly manufactured, is esteemed a fine fur, especially when the animal is taken in winter. It is, however, a difficult process to free the skin from fetid and offensive odour. Its prey is nearly the same as that of the weasel. Aldrovandus, Johnson, and several of the old writers, mention that the polecat will prey upon fish. The following fact is recorded in Bewick's *Quadrupeds*:—"During a severe storm, one of these animals was traced in the snow from the side of a rivulet to its hole, at some distance from it. As it was observed to have made frequent trips, and as other marks were to be seen in the snow, which could not easily be accounted for, it was thought a matter worthy of greater attention. Its hole was accordingly examined, the foumart taken, and eleven fine eels were discovered to be the fruits of its nocturnal exertions. The marks on the snow were found to have been made by the motions of the eels while in the creature's mouth."*

The ICHNEUMON, which is about the size of a cat, is chiefly known, and is highly valued in Egypt, for its agility and boldness in destroying serpents. In Egypt and India, it is accordingly kept as a domestic cat. No animal has a stronger propensity for the destruction of life. It soon rids a house of rats and mice, preys upon every reptile of the torrid zone, and frequently kills that fatal snake, the cobra di capello. Lucan in his *Pharsalia*, describes the manner in which the ichneumon combats the Egyptian asp,—a serpent whose bite is most deadly. The passage has been thus translated :

Thus oft the ichneumon on the banks of Nile,
Invades the deadly aspic by a wile ;

* Of the Martin and Sable, little requires to be noticed beyond what is contained in Goldsmith's *Nat. Hist.* vol. ii. p. 271—276. and n.

While artfully his slender tail is play'd,
The serpent darts upon the dancing shade ;
Then turning on the foe, with swift surprise,
Full on the throat the nimble seizer flies ;
The gasping snake expires beneath the wound,
His gushing jaws with poisonous floods abound,
And shed the fruitless mischief on the ground.

So strong is the disposition of this animal for destruction, that an accident is sufficient to awaken this propensity, though it may have been long dormant.

" I had," says M. d'Obsonville, in his *Essay on the Nature of various Animals*, " an ichneumon very young, which I brought up. I fed it at first with milk, and afterwards with baked meat, mixed with rice. It soon became even tamer than a cat ; for it came when called, and followed me, though at liberty, into the country. One day I brought to him a small water serpent alive, being desirous to know how far his instinct would carry him, against a being with which he was hitherto totally unacquainted. His first emotion seemed to be astonishment, mixed with anger : for his hair became erect : but in an instant after, he slipped behind the reptile, and, with remarkable swiftness and agility, leaped upon its head, seized it, and crushed it between his teeth. This essay, and new aliment, seemed to have awakened in him his innate and destructive voracity, which, till then, had given way to the gentleness he had acquired from his education. I had about my house several curious kinds of fowls, among which he had been brought up, and which, till then, he had suffered to go and come unmolested and unregarded ; but, a few days after, when he found himself alone, he strangled them every one, eat a little, and, as it appeared, drank the blood of two."

In its conflicts with poisonous serpents, they sometimes bite the little creature, in which case, as is reported, it immediately flies to the root of a certain plant, which is said to counteract the effects of poison. This plant is called by the Indians after the animal. Mr Percival saw an experiment tried in a closed room, where the ichneumon, instead of attacking a poisonous serpent that was presented to him, did all in his power to avoid it. On the snake being carried out of the house, however, and laid near his antagonist in a plantation, he immediately darted at, and soon destroyed it. It then retired to the wood, and ate

a portion of that plant which is said to be an antidote to the serpent's bite.

All the animals of the weasel kind have glands, which furnish an odorous matter. In those already described, the odour emitted is disagreeable—but there remain two animals of this class, in which it is to be found in the extremes of the most intolerable and suffocating fœtor in nature, and one of the most highly prized of perfumes. The former of these is characteristically denominated the STINKARD, or, according to the minor distinctions, noticed in the Natural History, the skink, and the zorille. So abominable and powerful is the fœtor sent forth from the stinkard, that provisions once touched with it are irrecoverable. Cloths have been washed, soaked for days in water, dried in the sun, and still retained this fetid smell for many weeks. Cattle that come within the influence of this vapour, are so disgusted and alarmed, that they set up a horrid bellowing.

The CIVET, on the other hand, is remarkable, as yielding the well-known perfume, which bears the name of the animal from which it is extracted. The perfume is contained in the usual pouch, and so liberally does the animal furnish it, that the pouch will bear to be emptied two or three times a week.

In a native state, the civet feeds on birds and small animals. It is naturally savage and ferocious, but is easily tamed. It is possessed of great agility, leaps with all the nimbleness of a cat, and, like that animal, takes its prey by pouncing upon it.

M. Barbot had a tame civet at Guadaloupe, which was allowed to be a whole day without food. On the following morning, the hungry animal gnawed through the wood of his cage, and entered a room in which M. Barbot was writing. The civet stared about with a ferocious and sparkling eye for some time, and then made a leap at a beautiful American parrot, which was perched on a piece of wood, fixed in the wall, about six feet from the ground. Before Barbot could reach the bird, the civet had torn his head off, and had actually begun to feast on his victim.

The GLUTTON, or, as it is commonly called, the WOLVERENE, is now ascertained to belong rather to the bear, than to the weasel tribe. It is about the size of a fox, but it attacks that animal even in its burrow, and readily destroys it. The extraordinary voracity of the glutton gives the impulse to all its exertions. Inces-

antly in search of food—it kills animals larger and stronger than itself, seizes the deer which the hunter has just shot, plunders the bait on his traps, or the game they have taken. A proof at once of the strength, the cunning, and the strong appetite of the wolverene, was afforded by one at Churchill, on Hudson's Bay, about twenty years since, that upset the greatest part of a pile of wood, which measured upwards of seventy yards round, and contained a whole winter's firing, to get at some provisions that had been hidden there by the Company's servants when going to the factory to spend the Christmas holidays. This animal had for many weeks been lurking about the neighbourhood of their tent, and had committed many depredations on the game caught in their traps and snares, as well as eaten many of the foxes that were killed by guns set for the purpose; but he was too cunning either to take gun or trap himself. The people thought they had adopted the most effectual method to secure their provisions, by tying them up in bundles, and placing them on the top of the wood pile. They could not suppose the wolverene would even have found out where they were, and, much less, that he could get at them if he did make the discovery. To their astonishment, however, when they returned, they found the greatest part of the pile thrown down, notwithstanding some of the trees with which it was constructed were as much as two men could carry. The wood was very much scattered about; and it was imagined that, in the animal's attempting to carry off the booty, some of the small parcels of provisions had fallen down into the heart of the pile, and, sooner than lose half his prize, he was at the trouble of doing this. The bags of flour, oatmeal, and pease, though of no use to him, he tore all to pieces, and scattered the contents about on the snow; but every bit of animal food, consisting of beef, pork, bacon, venison, salted geese, and partridges, in considerable quantities, he carried away.

THE HARE KIND.

THE Hare kind not inappropriately follows the weasel, as being the prey of these fierce little animals. Every region of nature seems filled with contention and cruelty ; the lion springs on the deer in the spacious desert, and the weasel fastens on the hare or the rabbit, amidst cultivated fields, or the furze of a seemingly peaceful solitude. The hare kind are the most timid and innocent of animals, and accordingly they have the most persecutors. Every animal that feeds on flesh, seeks them as its prey. They live a life of perpetual alarm, every moment seems to them fraught with danger, and every faculty that they possess, to be fitted, not for resistance but flight. The fecundity maintains the existence of the species ; the succession of the individuals is rapid beyond parallel,—they perish, and are replaced by hundreds. They all likewise possess extraordinary powers of escape, varied according to the different tribes of the species.

THE HARE.

The single resource of the hare is to be found in its swiftness. It sometimes indeed uses sleights and arts, in attempting its escape, but these all depend on its rapidity of flight, and are directed to give it efficiency. Many of its habitudes betray it to destruction. Its course, seldom directed to a distance from its form, does not, like the flight of the fox, render its pursuit more inconvenient to the sportsman ; and its habit of always proceeding when unmolested in identically the same tracks, makes it an easy victim to the snare or gin. Its terror, too, which sometimes adds wings to the

flight of the animal, on other occasions, overwhelms its energies, so that it will occasionally be caught by a dog, that in other circumstances it would have left with the rapidity of the wind. Perhaps no animal can run so swiftly as the hare when first started. Even when overtaken by the greyhound, her hope is not over ; she turns aside, and allows the pursuer to waste his impetus on a wrong direction ; but the greyhounds become accustomed to her sleights, and counting on them, often seize her at the very turn which she intended for her preservation. Still more hopeless is her escape from a pack of hounds that hunt by the scent.

She flies, she leaps, and bounces to deceive,
Till fainting, breathless, spent, at last she drops
On some fresh verdant turf or thymy bank,
Once the gay scene of her nocturnal sports.

But if experience supplies the dog with knowledge of the habitudes of the hare, the life which it leads, and the dangers it experiences, as well as natural instinct, suggest to the hare, not a few artifices in flight. It acquires a certain coolness and caution in its very fear, which often aid its escape. An experienced hare will even trifle with a dog which she sees incapable of taking her. She runs for a while just at such a speed as to keep at a certain distance from her pursuer, and as soon as he seems sufficiently fatigued, she rapidly leaves him to whine and growl over his disappointment. Her arts of doubling, returning on her path, and taking long leaps across it, to perplex such hounds as follow by the scent, are all well known ; and in the case of those hounds that pursue by the sight, she has an advantage in her colour, which so closely resembles that of the ground, that at a small distance it requires the eye of an experienced man to distinguish her. The following is a not uncommon resource of the hare, and is recorded in the *Sporting Magazine*, as having happened during a run with a well-known pack of harriers, in the West of England. The hunted hare being nearly exhausted, happened to come upon another hare in her form, from which she drew her out, and introduced herself ; the pack followed the new started hare ; and the huntsmen, on coming up, found the hare which they had been hunting squatted, panting very hard, and covered with mud. In March, 1793, a hare that had been chased upwards of two hours, by a pack of beagles, was after-

wards pursued by a couple of lurchers, to escape which, she jumped into the window of a blacksmith's shop at Salehurst, and was taken alive in the coal-trough. Fouilloux says, he saw a hare start from its form at the sound of the hunter's horn, run towards a pool of water at a considerable distance, plunge in and swim to some rushes in the middle, where it lay down and concealed itself from the pursuit of the dogs.

The hare, though she has every reason to dread man as her worst enemy, often approaches very near his habitation, and seeks refuge sometimes in gardens, or out-houses. In the *Annals of Sporting*, for May 1822, a gentleman furnishes the following interesting relation. "Two years ago, a doe hare produced two young ones in a field adjoining my cottage; and the three were occasionally seen, during the summer, near the same spot. But the leverets were, I have reason to believe, killed at the latter end of September of the same year; the old doe hare was also coursed, and making directly for my cottage, entered the garden, and there blinked the dogs. I repeatedly afterwards saw her sitting, sometimes in the garden, (which is one hundred and ten yards by forty-three,) but more frequently in the garden-hedge. She was repeatedly seen by greyhounds when she sat at some distance, but uniformly made for the garden, and never failed to find security. About the end of the following January, puss was no longer to be seen about the garden, as she had probably retired to some distance with a male companion. One day, in February, I heard the hounds, and shortly afterwards observed a hare making towards the garden, which it entered at a place well known, and left not the least doubt on my mind, that it was my old acquaintance, which, in my family, was distinguished by the name of Kitty. The harriers shortly afterwards came in sight, followed Kitty, and drove her from the garden. I became alarmed for the safety of my poor hare, and heartily wished the dogs might come to an irrecoverable fault. The hare burst away with the fleetness of the wind, and was followed breast high, by her fierce and eager pursuers. In about twenty minutes I observed Kitty return towards the garden, apparently much exhausted, and very dirty. She took shelter beneath a small heap of sticks, which lay at no great distance from the kitchen door. No time was to be lost, as, by the cry of the hounds, I was persuaded they were nearly in sight. I took

a fishing-net, and, with the assistance of the servant, covered poor Kitty, caught her, and conveyed the little, panting, trembling creature into the house. The harriers were soon at the spot, but no hare was to be found. I am not aware that I ever felt greater pleasure than in thus saving poor Kitty from her merciless pursuers. Towards evening I gave Kitty her liberty; I turned her out in the garden, and saw her not again for some time. In the course of the following summer, however, I saw a hare several times, which I took to be my old friend; and, in the latter end of October, Kitty was again observed in the garden. Henceforward she was occasionally seen as on the preceding winter. One morning, in January, when I was absent, a gun was fired near my cottage; Kitty was heard to scream, but, nevertheless, entered the garden vigorously. The matter was related to me on my return home; and I was willing to hope that Kitty would survive. However, I had some doubt on the subject; and, the next morning, as soon as light permitted, I explored the garden, and found that my poor unfortunate favourite had expired; she was stretched beneath a large gooseberry tree; and I could not help regretting very much her death.

The hare is said to love music. There is an anecdote related of five choristers, who, while singing an anthem by the banks of the Mersey, in Cheshire, attracted the notice of a hare; when they ceased, she made off—but on their again commencing, she returned quickly and stood about twenty yards distant in the open field. When they finished, she again bent her way to a neighbouring wood.

The hare has been frequently tamed. We are informed by Borlase, in his *Natural History of Cornwall*, that he had a hare so completely tamed, as to feed from the hand; it always lay under a chair in the ordinary sitting room, and was as much domesticated as a cat. It was permitted to take exercise and food in the garden, but always returned to the house to repose. Its usual companions were a greyhound and a spaniel, with whom it spent its evenings. The whole three seemed much attached, and frequently sported together, and at night they were to be seen stretched together on the hearth. What is remarkable, both the greyhound and spaniel were often employed in sporting, and used secretly to go in pursuit of hares by themselves,

yet they never offered the least violence to their timid friend at home. Dr Townson, the traveller, when at Gottingen, brought a young hare into such a state of domestication, that it would run and jump about his sofa and bed. It leapt on his knee, patted him with its fore feet ; and frequently, while he was reading, it would knock the book out of his hands, as if to claim, like a fondled child, the preference of his attention.

There is something very pleasing to the mind, in reconciling to domestic life an animal so naturally shy and fearful as the hare. The success which has attended such attempts, shows that the want of confidence in the animal, arises from the experience, and the fear of danger, and these need but to be removed, to obtain a considerable familiarity from the animal. The traits of character developed, will be different, in different instances, as has been well delineated by Cowper, who often soothed or amused his mind in the intervals of agonized feeling, by the cares and satisfactions of taming hares. His very characteristic and amusing account of his tame hares, is too well known, or too easily accessible, to require insertion here.

The hare is protected even by its persecutors, and it is certain, that in many places, were it not for the attentions of the game-keeper, the race would become nearly extinct. The amazing fecundity of the animal corresponds somewhat to its innumerable enemies. We are informed, in the first volume of the *Sporting Magazine*, that a gentleman, anxious to ascertain the fecundity of the hare, turned out a male and two females into a very large garden, well walled round, and on that day twelvemonth, the gate being opened, exactly forty seven were turned out. This progression, proceeding at the same rate, would soon overrun the earth.

The RABBIT, though an animal with which we are most familiar, seems so uniform in its habits, as to leave almost nothing to be reported of it, in the way of anecdote. It resembles the hare in appearance, but is smaller, and wants that wild, and persecuted look which belongs to the latter. Above all, however, it is distinguished from the hare, by burrowing in the ground ; and when disturbed, it makes directly for its retreat, in which it rests secure from most animals. It is very easily made tame, and is frequently domesticated. It then exhibits little to remark, except the mildness of its demeanour, in most cases, and the

sudden starts of rage to which it is liable when offended, in which case, it stamps or beats loudly on the ground with its hind feet. When tame, it retains so much of its natural disposition, as often to scrape up the ground with its feet, but seldom sets about making a burrow. They have been, however, kept in great numbers in a garden, in a wild and sequestered spot in a moor, where they burrowed as if at large, did not instantly fly the appearance of a person, as in the wild state, and at the same time, would not allow themselves to be caught. They might easily have got away, for the hedge could not have kept them; but either the love of their burrows, or of the advantages of associating with man, kept most of them to the spot—not all, however, for a few set off and established a colony in the nearest moor. They seemed in general, satisfied, and yielded much satisfaction to the solitary old man who kept them.

It may be remarked, that the rabbit, like the other tribes of the hare, though so harmless to other animals, frequently fights with its own kind. Two males, confined in the same place with the other rabbits, will be sure to fight, and the stronger will bite and persecute the weaker incessantly. The effect may often be seen in wounds, extending over the back of the animal. The rabbit will also, when offended, bite the hand or leg of the person nearest it, with its sharp front teeth. It may be noticed too, that the male rabbit has a great propensity for destroying the young; to prevent which, the female carefully covers up the nest each time she goes out to feed, and when domesticated, seeks a place of concealment from the male.

THE SQUIRREL.

THIS is a lively little animal, about eight inches in length, with a body which would resemble that of a rabbit, but for a bushy tail, seven inches long, which gives a peculiar appearance to the animal. It is to be found in vast numbers, in the larger woods of Europe, Asia, and America. It is a very pleasing and lively object, when observed among the trees, skipping from one to another with much grace and ease. The fol-

lowing is a lively description of the appearance of the animal in the woods of Canada, furnished by Head. *

"I was waiting the approach of a large flock of wild fowl, but a little villain of a squirrel on the bough of a tree close to me, seemed to have determined that even now I should not rest in quiet, for he sputtered and chattered with so much vehemence, that he attracted the attention of my dog, whom I could scarcely control. The vagrant inattention of my dog was truly mortifying ; he kept his eyes fixed upon the squirrel, now so noisy as to be quite intolerable. With my hand, I made a motion to threaten him, but the little beast actually set up his back, and defied me, becoming even more passionate and noisy than before, till all of a sudden, as if absolutely on purpose to alarm the game, down he let himself drop, plump at once within a couple of yards of Rover's nose. This was too much for any four-footed animal to bear, so he gave a bounce and sprang at the impertinent squirrel, who, in one second, was safe out of his reach, cocking his tail, and showing his teeth on the identical bough where he had sat before. Away flew all the wild fowl, and my sport was completely marred. My gun went involuntarily to my shoulder to shoot the squirrel. At the same moment, I felt I was about to commit an act of sheer revenge, on a little courageous animal which deserved a better fate. As if aware of my hesitation, he nodded his head with rage, and stamped his fore paws on the tree : while in his chirruping, there was an intonation of sound, which seemed addressed to an enemy for whom he had an utter contempt. What business, I could fancy he said, had I there, trespassing on his domain, and frightening his wife and little family, for whom he was ready to lay down his life ? There he would sit in spite of me, and make my ears ring with the sound of his war whoop, till the spring of life should cease to bubble in his little heart."

These active qualities of the squirrel are very pleasantly developed, when it is domesticated and tamed. Many entertaining accounts of its lively gambols might be quoted. A gentleman procured one from a nest, found at Woodhouselee, near Edinburgh, which he reared, and rendered extremely docile. It was kept in a box below an aperture, where was suspended a rope,

* Journey through Canada.

by which the animal descended and ascended. The little creature used to watch very narrowly all its master's movements ; and, whenever he was preparing to go out, it ran up his legs, and entered his pocket, from whence it would peep out at passengers as he walked along the streets, never venturing, however, to go out. But no sooner would he reach the outskirts of the city, than the squirrel leaped on the ground, ran along the road, ascended to the tops of trees and hedges, with the quickness of lightning, and nibbled at the leaves and bark ; and, if he walked on, it would descend, scamper after him, and again enter his pocket. Whenever it heard a carriage or cart, it became much alarmed, and always hid itself till they had passed by. This gentleman had a dog, between which, and the squirrel, a certain enmity existed. Whenever the dog lay asleep, the squirrel showed its teasing disposition, by rapidly descending from the box, scampering over the dog's body, and quickly mounting its rope.

In the year 1814, a common squirrel was caught in Leadstone Park, near Ferry Bridge, and lodged for safe custody in a large wooden trap, which was used for taking rats alive. He was kept some weeks in this prison, till at length he contrived to effect his escape through a window, and repaired once more to his native woods. But he seemed to have lost his relish for the mingled sweets and troubles of liberty, for on the evening of the same day, the servant, on going to remove the trap, to his joy and surprise, found the squirrel, all wet and ruffled by the storm, which had taken place during the day, snugly reposing in the corner of the trap.

With respect to the other animals of the hare kind,—the Marmout, the Agouti, the Paca and the Guinea Pig, their habits are so minutely detailed in the Natural History, and the notes, as to preclude the necessity of here noticing them farther. We now come to a class of animals which obtrude themselves more frequently, though less agreeably on our notice.

THE RAT KIND, ETC.

THIS is a class of animals, which are chiefly remarkable from their disagreeable qualities. Their voracity, their boldness, their rapid multiplication in the very habitations of man, and their frequent attacks on his food, render their habits equally known and detested. Wherever men live, there also the rat endeavours to establish a habitation, and it is even more troublesome on board a vessel than in the recesses of the pantry, or the vacuities of walls and partitions.

The Brown, or Norway Rat, or Surmulot, as it is called by Buffon, is now the common rat of the country, having almost extirpated the weaker, and less noxious black rat. The brown rat is large and formidable, even in comparison of its size, disagreeable in its colour and appearance, and vile in its habits. It propagates so rapidly, that were it not for the very voracity of these animals, which impels them to destroy one another, their numbers would be incalculable. They have, however, many enemies—dogs, cats, and weasels; but man, by means of traps, or poison, destroys more than all the others. They are still to be found almost every where—in ships, in the walls of harbours, in storehouses, in all situations, from the palace to the dunghill. Their presence is disagreeable enough, but that is a small evil compared with their attacks on provisions, and the quantities, which, if unmolested, they would devour. When other food fails, they kill one another, and it is a curious fact in the history of these animals, that the skins of such of them as have been devoured in their holes, are frequently found turned inside out; every part being completely inverted, even to the points of the

toes. How this operation is performed, it would be difficult to ascertain ; but it appears to be effected by some peculiar mode of eating out the contents. Mice speedily disappear from a house which is infested by rats, and there was, in 1827, in the farmhouse of Lyonthom, near Falkirk, in Stirlingshire, a single rat that first devoured the mice, which were caught in traps, and was afterwards seen to catch them as they ventured from their holes, till, at length the whole house was cleared of these vermin.

Rats will bite a person who seizes them if they can ; they will even bite a finger which may be thrust into one of the holes which they have made in a floor, and they have been known in a few cases, to attack individuals when asleep. In the house of Mr Robertson, watchmaker, Paisley, in August 1825, a rat entered the bed where his eldest boy lay, but was knocked off by him under the supposition that it was the cat. It met with similar treatment in a bed where other two children lay, and expressed great displeasure by squeaking ; it was then known to be a rat. The horrid animal was not to be deterred from the object in view by these rebuffs, and made another attack. Some moments after the second alarm, one of the little girls was heard to scream ; but all the children were inclined to sleep, and even the little creature who was wounded fell also asleep. The morning, however, presented a dismal scene. The bed containing the two girls, was found drenched with blood. The rat had seized the child just under the middle of the forehead, and its teeth having entered a vein, the poor girl was almost in a state of insensibility from loss of blood. In 1829, a rat bit three children, of a family in Exeter, two in the arms and legs, and the third in the throat. The rat was caught and killed, and its stomach being opened was found gorged with blood.

As a proof of the ferocity of rats, we may adduce another instance. As Mr Hoare, jun. of Tring Grange farm, was returning, about ten o'clock at night, he saw upwards of one hundred rats approaching him on the common. He threw stones among them, when they instantly surrounded him, and several ran up his body as high as his shoulders. With much difficulty, Mr Hoare succeeded in beating them off ; both his hands were severely bitten and swollen.

Though voracious, the rat is capable of enduring hunger for a

long time. A family in Leith having gone to the country during summer, set a rat trap in the cellar adjoining the house previous to their departure, baited with a piece of toasted cheese, and a few slices of apple. They left home early in August, 1829, and on their return, on the 10th September, they visited the cellar, and found a poor emaciated rat in the box, literally spent to skin and bone, and in the last stage of exhaustion, the presumption was, that it had been existing for a long time without food of any kind. Hunger had made it perfectly tame, and it was allowed to live. An animal so voracious is easily caught in a trap, especially when baited with roast beef, a food of which they are so fond, that they have been known to take out and devour the stomach of one of their own species, caught in a trap, baited with this kind of flesh. In the end of October, 1825, the mounds of stones opposite to the houses in the High Street of Edinburgh, which had been destroyed by fire, were overrun with rats, which had escaped the flames. No sooner was it dark, than these animals were to be seen running about in all directions in search of food. A number of boys regularly assembled there to destroy them. One boy baited a fish-hook with flesh, and casting it into the watercourse beneath one of these mounds, he drew out, in succession, a number of rats,

The rat is not only fierce, but sometimes courageous. A cat which leapt into the midst of about a dozen of them in a dung-cart at Dundee, was so astonished by the manner in which they all, with the exception of two that fled, displayed their teeth, that it immediately hastened off.

Of the ingenuity of the rat in its self-preservation, the following is an instance. During the great flood of 4th September, 1829, when the river Tyne was at its height, a number of people were assembled on its margin. A swan at last appeared, having a black spot on its plumage, which the spectators were surprised to find, on a nearer approach, was a live rat. It is probable it had been borne from its domicile on some hay rick, and, observing the swan, had made for it as an ark of safety. When the swan reached the land, the rat leapt from its back, and scampered away.

The Black Rat was once the ordinary species of Britain, and is supposed to have been introduced from India and Persia. So voracious are they, that in 1766, when the Valiant man-of-war

was returning from Havannah to Britain, they increased to such numbers, that they destroyed daily an hundred weight of biscuit. They are also very apt to gnaw clothes, a circumstance which was considered ominous in former times. Sir James Turner, in his *Memoirs*,* has narrated the theft nightly “of one linnen stockine, one halfe silke one and one boothose, the accoustrement under a boote for one leg,” for three successive nights. On searching, he found at the top of a hole, a fragment of his property, and on raising the boards, he got also four and twenty angels of gold, which the insecure nature of the times, and the spending disposition of her husband, had induced his hostess to hide. But though the rats had spared the gold, which he restored to the woman, they had entirely gnawed in pieces the velvet purse in which it had been secreted, and the stockings, &c. of Sir James Turner. His reflections on the subject are rather curious. “I have often heard that the eating or gnawing of cloths by rats is ominous, and portends some mischance to fall on these to whom the cloths belong. I thank God I was never addicted to such divinations, or heeded them. It is true, that more misfortunes than one fell on me shortlie after; bot I am sure I could have better forseene them myselfe than rats or any such vermine, and yet did it not. I have heard indeed many fine stories told of rats, how they abandon houses and ships, when the first are to be burnt, and the second dround. Naturalists say they are very sagacious creatures, and I beleeeve they are so; bot I shall never be of the opinion they can foresee future contingencies, which, I suppose the divell himselfe can neither for-know nor fortell; these being things which the Almightye hath kepted hidden in the bosome of his divine prescience.”

THE MOUSE.

THE Mouse is too well known to need description here, and some curious circumstances, relating to the varieties of the species, are recorded in the Notes to the Natural History.† We shall here notice, in addition, the manner in which this animal is

affected by music. Dr Archer of Norfolk, in the United States, has recorded an instance in which a mouse became attracted by the sound of his flute, reappeared at the mouth of its hole, when after having ceased he re-commenced playing. This experiment was repeated frequently with the same success, and the animal was always differently affected, as the music varied from the slow and plaintive, to the brisk or lively. It finally went off, and all his art could not entice it to return.

A still more remarkable occurrence of the same kind has been communicated to the Philadelphia Medical and Physical Journal, by Dr Cramer, of Jefferson's county, on the authority of a gentleman of undoubted veracity, who states, that "one evening in the month of December, 1817, as a few officers on board a British man-of-war, in the harbour of Portsmouth, were seated round the fire, one of them began to play a plaintive air on the violin. He had scarcely performed ten minutes, when a mouse, apparently frantic, made its appearance in the centre of the floor. The strange gestures of the little animal strongly excited the attention of the officers, who, with one consent, resolved to suffer it to continue its singular actions unmolested. Its exertions now appeared to be greater every moment; it shook its head, leapt about the table, and exhibited signs of the most ecstatic delight. It was observed, that in proportion to the gradation of the tones to the soft point, the feelings of the animal appeared to be increased. After performing actions which an animal so diminutive would, at first sight, seem incapable of, the little creature, to the astonishment of the delighted spectators, suddenly ceased to move, fell down, and expired without evincing any symptoms of pain."

THE DORMOUSE.

THIS animal is remarkable, not only among mice, but among quadrupeds, from the dormant state in which he remains during winter. His sleep, however, is not constant through the cold season, like that of some other animals; for he wakes, at times, to eat of the store of nuts and beech-mast which he has provided

for his sustenance in the autumn. The marmot, a quadruped inhabiting some mountainous parts of Europe, makes no provision of this kind in his subterranean galleries. He sleeps completely.

M. Mangili, an Italian naturalist, made some curious experiments upon the dormouse and other animals which sleep during the cold weather. He kept the dormouse in a cupboard in his study. On the 24th December, when the thermometer was about 40° , that is, 8° above the freezing point, the dormouse curled himself up amongst a heap of papers and went to sleep. On the 27th December, when the thermometer was several degrees lower, M. Mangili ascertained that the animal breathed, and suspended his respiration at regular intervals:—that is, that after four minutes of perfect repose, in which he appeared as if dead, he breathed about twenty-four times in the space of a minute and a half, and that then his breathing was again completely suspended, and again renewed. As the thermometer became higher, that is, as the weather became less cold, the intervals of repose were reduced to three minutes. On the contrary, when the thermometer fell nearly to the freezing point, the intervals were then six minutes. Within ten days from its beginning to sleep (the weather then being very cold), the dormouse woke and ate a little. He then went to sleep again; and continued to sleep for some days, and then to awaken, throughout the winter; but as the season advanced, the intervals of perfect repose, when no breathing could be perceived, were much longer, sometimes more than twenty minutes. The effects of confinement upon this individual animal caused him to sleep much longer than in a state of nature.

When a dormouse is discovered asleep, in his natural retreat, he is cold to the touch, his eyes are shut, and his respiration is slow and interrupted, as just described. Torpid animals, in general, when thus found, may be shaken, or rolled, or even struck, without a possibility of arousing them. But as the fine weather advances, the heat of their bodies increases, as it decreases at the approaches of winter; till at length they shake off their drowsiness, and are again the busy and happy inhabitants of the fields and gardens, active in the search of food to gratify their appetite, which is now as keen as it was dull in the cold months. These movements of course depend upon the states

of the atmosphere, and are different in individuals of the same species.

THE MOLE.

THE form of this creature's body, and the peculiar construction of its fore feet, admirably adapt it for making its way through the earth. His excavations are galleries of many feet in length, worked out by his snout and strong fore-paws, with all the skill and expedition of a human miner; and when he is alarmed he retreats to his citadel, and defies all enemies. The mole, as is well known to the country reader, is destroyed by a trap of peculiar construction, which is discharged by the little animal passing through it. The mole-catcher—in general a quiet old man, who passes the winter in making his traps in his chimney corner—comes forth at this season with his implements of destruction. His practised eye soon discovers the track of the mole, from the mound which he throws up to some neighbouring bank, or from one mound to another. It is in this track or run that he sets his trap, a few inches below the surface of the ground. As the mole passes through this little engine of his ruin he disturbs a peg which holds down a strong hazel rod in a bent position. The moment the peg is moved the end of the rod which is held down flies up, and with it comes up the poor mole, dragged out of the earth which he has so ingeniously excavated, to be gibbeted without a chance of escape. The trap is very simple and effectual; but, somehow, the moles flourish in spite of their human enemies. Mole-catchers, a plodding, unscientific race, know little of their trade, which requires the most accurate study of the habits of the animal. There was a Frenchman of the name of Le Court, (he died about two years ago,) a man of great knowledge and perseverance, who did not think it beneath him to devote his whole attention to the observation of the mole. He established a school for mole-catching; and taught many, what he had acquired by incessant perseverance, the art of tracing the mole to his hiding-place in the ground, and cutting off his retreat. The skill of this man once saved a large and fertile district of France from

inundation by a canal, whose banks the moles had undermined in every direction. Le Court alone saw the mischief, and could stop it. Doubts have been entertained whether moles are really so mischievous to the farmer as they are generally supposed to be. It has been said that they assist the draining of land by forming their excavations, and that they thus prevent the foot-rot in sheep. The following is the Ettrick Shepherd's opinion on the subject:—"If a hundred men and horses were employed on a common sized pasture farm, say from fifteen hundred to two thousand acres, in raising and driving manure for a top dressing of that farm, they would not do it so effectually, so neatly, or so equally, as the natural number of moles on the farm would do for themselves."

Nothing is more fatal to the mole than excessive falls of rain, which fills their subterranean galleries with water; and yet from the following statement made by Mr A. Bruce in the *Linnæan Transactions*, the animal seems to be not without enterprise on the water:—"On visiting the Loch of Clunie, which I often did, I observed in it a small island at the distance of one hundred and eighty yards from the nearest land, measured to be so upon the ice. Upon the island, the Earl of Airly, the proprietor, has a castle and small shrubbery. I remarked frequently the appearance of fresh mole casts, or hills. I for some time took them for those of the water mouse, and one day asked the gardener if it was so. No, said he, it was the mole; and that he had caught one or two lately. Five or six years ago, he caught two in traps; and for two years after this he had observed none. But, about four years ago, coming ashore one summer's evening in the dusk, with the Earl of Airly's butler, they saw at a short distance, upon the smooth water, some animal paddling towards the island. They soon closed with this feeble passenger, and found it to be the common mole, led by a most astonishing instinct from the castle hill, the nearest point of land, to take possession of this desert island. It had been, at the time of my visit, for the space of two years quite free from any subterraneous inhabitant: but the mole has, for more than a year past, made its appearance again, and its operations I have since been witness to."

Moles are said to be very ferocious animals. We are told that a mole, a toad, and a viper, were enclosed in a glass case;

the mole despatched the other two, and devoured a great part of each.

The smell of garlic is so offensive to moles, that, to get rid of them, nothing more is necessary than to introduce a few heads of it into their subterraneous vaults.

THE HEDGEHOG.

THIS animal is well known from the thick and sharp prickles with which its back and sides are covered, and the contractile power by which it can draw its head and belly within the prickly covering of its back, so as to give itself the appearance of a ball. It is found near hedges and thickets ; from the fruits and herbage of which it obtains its food. It is incontrovertible now, that it also feeds upon small animals, such as snails and beetles. Mr Woodcock, surgeon, Bury, Lancashire, obtained one from a peasant which was rolled up, and had in its mouth a toad, the head and one of the legs of which were consumed, and the remainder the animal held the firmer, when any one attempted to withdraw it. It feeds on eggs also, and for this purpose enters the hen-roost, and drives the hen off her nest. Mr Lane, gamekeeper to the Earl of Galloway, in 1818, saw a hedgehog crossing a road, carrying on its back six pheasant eggs, which it had pilfered from a nest hard by. It crept into a furze bush, where the eggs of several birds were strewed around.

The hedgehog lives in a state of torpidity during the winter, and forms its hybernaculum of leaves and moss, which it deposits in a round hole, dug by itself, at the foot of a hedge. A gentleman from Gloucester, states, that a tame one which he kept, lost this natural habit, and was as lively in the month of December as in June.

The sagacity of the hedgehog is celebrated in antiquity. We are informed by Plutarch, that a citizen of Cyzicus thus acquired the reputation of a good mathematician ; A hedgehog generally has its burrow open in various points ; and, when its instinct warns it of the change of the wind, it stops up the aperture towards that quarter. The citizen alluded to, becoming aware of this practice, predicted to what point the wind would next shift.

Though of a very timid disposition, the hedgehog has been sometimes tamed :—In the year 1799, there was a hedgehog in the possession of Mr Sample, of the Angel Inn, at Felton, in Northumberland, which performed the duty of a turnspit, as well, in all respects, as the dog of that denomination. It ran about the house with the same familiarity as any other domestic quadruped. In the ‘Sporting Magazine,’ for 1821, there is an account of one that, after having been tamed in a garden, found its way to the scullery, and there made regular search for the relics of the dinner plates ; having its retreat in the adjoining cellar. It was fed after the manner itself had selected, milk was given in addition to the meat ; but it lost its relish for vegetables, and constantly rejected them. It soon became as well domesticated as the cat, and lived on a footing of intimacy with it.

From the readiness with which, in the above case, the animal’s appetite became adapted to flesh, we may suspect that its disposition is not uniformly pacific ; and some instances prove that it will occasionally attack small animals. In 1829, a labourer of the name of Copland, while abroad in the fields near Terraghty, Dumfriesshire, overheard a sound, which convinced him that a hare was suffering ; and the man, after looking carefully round, came upon a leveret, which was now lying dead by the side of a hedgehog. The enemy had by this time coiled himself into a ball ; but, as appearances indicated that he had killed the leveret, Copland was so enraged at his audacity, that he took the top of his axe, and despatched him in a moment. Young hares are so extremely stupid, even after they leave the parent seat, that cats and weasels kill many of them every season ; and we must now, it appears, add the hedgehog to their previously formidable list of enemies.

THE PORCUPINE.

LESS completely covered with weapons of defence than the hedgehog, the porcupine possesses them in greater strength, for its formidable quills are capable of inflicting severe wounds. The animal, however, is timid, and its food more entirely com-

posed of vegetables, than even that of the hedgehog. When irritated, or in danger, it raises its quills on its back ; but it is, though fretful, not fierce in its disposition, but easily tamed. The late Sir Ashton Lever had a tame porcupine, a domesticated hunting leopard, and a Newfoundland dog, which he used frequently to turn out together to play in a green behind his house. No sooner were the dog and leopard let loose, than they commenced chasing the porcupine, who uniformly, at the outset, tried to escape by flight ; but when he found there was no chance of doing so, he would thrust his head into some corner, make a snorting noise, and erect his spines. His pursuers, if too ardent, pricked their noses, till the pain made them quarrel, which generally afforded him an opportunity of effecting his escape.

THE ARMADILLO.

THIS is one of a class of animals very distinct from other quadrupeds. Instead of hair, the bodies of this remarkable tribe are covered with a kind of coat of mail, divided into bands or shelly zones ; and, in this respect, they seem an intermediate link between quadrupeds and tortoises. Armadillos afford a beautiful example of deviation, in general structure and appearance, from the quadrupedal form. They inhabit subterranean retreats or burrows, which they excavate with facility, by means of their large and strong claws. They feed at night, on roots and grain, and occasionally prey on the smaller animals of various kinds, such as worms, insects, and lizards. In a captive state, they feed on flesh readily, which they will eat in considerable quantity.

The flesh of the armadillo is considered excellent eating by the natives of South America, especially when young ; but when old, it acquires a strong musky flavour. When attacked, the armadillo rolls itself up in the form of a round ball, and becomes, in a degree, invulnerable. The mechanism of their singular structure demands our highest admiration, and affords a striking example of the powers of divine wisdom.

THE BAT KIND.

THIS well known little animal is about the size of a mouse, and resembles it in the configuration of its body. It contains the extraordinary addition of wings which, when extended, measure from the extreme points about nine inches. It passes the winter in a state of torpidity, and, as it appears, of total suspension of the vital powers; for in that state, it does not suffer from carbonic acid gas, an atmosphere so deleterious, as instantly to kill any small animal exposed to its influence.

The following is Spallanzani's account of his experiments on the subject:—"I first wished to ascertain if, when respiration was suspended in these animals, there would be any production of carbonic acid from the skin; for which purpose, I substituted azotic for carbonic acid gas. I then placed in this gas two bats, the thermometer standing at nine degrees, and allowed them to remain in it about two hours; after which, I gradually removed them into a warmer medium, when they exhibited evident signs of life; but I could discover no carbonic acid gas in the azotic gas,—from which I was led to conclude, that the temperature was too low for the exhalation of this gas. I repeated these experiments at different temperatures successively raised to three and a half degrees, when five hundredths of carbonic acid gas were produced, although the torpidity of the animal was equally great.

"In this state of things, I repeated the experiments under similar circumstances, only removing the bats into another vessel, filled with atmospheric air, when I found not only the production a five and a half hundredths of carbonic acid gas, but the destruction of six hundredths of oxygen gas. Although these two small quadrupeds were enclosed in common air, their profound torpor prevented them altogether from respiring; nor could that swelling and sinking in their sides be perceived, which are occasioned by the inflation and collapse of the lungs

during respiration ; neither did these phenomena occur in the open air. From all which, it is evident, that the partial consumption of oxygen gas was in consequence of its absorption by the skin."

Bats have frequently been found alive in the centre of trees :— In the beginning of November, 1821, a woodman, engaged in splitting timber for rail posts, in the woods close by the lake at Haining, a seat of Mr Pringle's, in Selkirkshire, discovered, in the centre of a large wild cherry tree, a living bat, of a bright scarlet colour, which, as soon as it was relieved from its entombment, took to its wings, and escaped. In the tree, there was a recess sufficiently large to contain the animal ; but all around, the wood was perfectly sound, solid, and free from any fissure, through which the atmospheric air could reach the animal. A man engaged in splitting timber, near Kelsall, in the beginning of December, 1826, discovered, in the centre of a large pear tree, a living bat, of a bright scarlet colour, which he foolishly suffered to escape, from fear, being fully persuaded, (with the characteristic superstition of the inhabitants of that part of Cheshire,) that it was a "being not of this world." The tree presented a small cavity in the centre, where the bat was enclosed ; but was perfectly sound and solid on each side.

The above facts are corroborative of each other. It would be difficult to account for the strange colour of these animals, on philosophical principles ; for, no doubt, when they were first immured, they must have been of the natural colour. Doubtless, while here enclosed, they must have been in a state of torpor, and, consequently, incapable of respiration ; so that the red colour could not depend upon the oxygen breathed by the animal, which is the colouring principle of blood in all red blooded animals.

The common bat, from the melancholy nature of its haunts, and its habit of flying in the dimness of the evening, is connected with dismal associations—but these are trifling, compared with the terrors of the Spectre Vampire.

This frightful looking animal, one of the largest of the bat tribe, is a native of South America, and some of the islands of the Pacific Ocean. It has an insatiable thirst for blood, like many others of its congeners. M. de Condamine says,—“ The bats, which suck the blood of horses, mules, and even men, when

not guarded against, by sleeping under the shelter of a pavilion, are a scourge to most of the hot countries of America." He asserts, that, in his time, at Boria, and several other places, in certain situations, they had even destroyed the breed of great cattle introduced there by the missionaries.

We are assured by Mr Foster, that vampyres are very numerous in the Friendly Islands, where he has seen them hanging, like swarms of bees, in clusters, and not fewer than five hundred of them, suspended from trees, some by their fore feet, and others by their hind legs.

The length of the body of the spectre vampyre is about six inches ; and the extent of its wings, upwards of two feet.

Captain Stedman, in his ' Narrative of a Five years' Expedition against the revolted Negroes of Surinam,' relates, that, on awaking about four o'clock one morning in his hammock, he was extremely alarmed at finding himself weltering in congealed blood, and without feeling any pain whatever. "The mystery was," says Captain Stedman, "that I had been bitten by the vampyre, or spectre of Guiana, which is also called the flying dog of New Spain ; and, by the Spaniards, *perrovolador*. This is no other than a bat of monstrous size, that sucks the blood from men and cattle, while they are fast asleep, even sometimes till they die ; and, as the manner in which they proceed is truly wonderful, I shall endeavour to give a distinct account of it. Knowing, by instinct, that the person they intend to attack is in a sound slumber, they generally alight near the feet, where, while the creature continues fanning with his enormous wings, which keeps one cool, he bites a piece out of the tip of the great toe, so very small, indeed, that the head of a pin could scarcely be received into the wound, which is, consequently, not painful ; yet, through this orifice, he continues to suck the blood, until he is obliged to disgorge. He then begins again, and thus continues sucking and disgorging, until he is scarcely able to fly, and the sufferer has often been known to pass from time to eternity. Cattle they generally bite in the ear, but always in places where the blood flows spontaneously. Having applied tobacco ashes, as the best remedy, and washed the gore from myself and hammock, I observed several small heaps of congealed blood, all round the place where I had lain, upon the ground ; on examin-

ing which, the surgeon judged that I had lost, at least, twelve or fourteen ounces of blood."

"Some years ago," says Mr Waterton, "I went to the river Paumaron, with a Scotch gentleman, by name Tarbet. We hung our hammocks in the thatched loft of a planter's house. Next morning, I heard this gentleman muttering in his hammock, and now and then letting fall an imprecation or two, just about the time he ought to have been saying his morning prayers. 'What is the matter, Sir?' said I, softly: 'is any thing amiss?' 'What's the matter?' answered he, surlily; 'why, the vampyres have been sucking me to death.' As soon as there was light enough, I went to his hammock, and saw it much stained with blood. 'There,' said he, thrusting his foot out of the hammock, 'see how these infernal imps have been drawing my life's blood.' On examining his foot, I found the vampyre had tapped his great toe. There was a wound somewhat less than that made by a leech. The blood was still oozing from it. I conjectured he might have lost from ten to twelve ounces of blood. Whilst examining it, I think I put him into a worse humour, by remarking, that a European surgeon would not have been so generous, as to have blooded him, without making a charge. He looked up in my face, but did not say a word. I saw he was of opinion, that I had better have spared this piece of ill-timed levity." *

* Waterton's Wanderings in South America, p. 176.

AMPHIBIOUS ANIMALS.

THE OTTER.

THE Otter belongs to the order Feræ, but is placed by Goldsmith under the head of Amphibious Quadrupeds. It is only in its amphibious qualities that it differs from the weasel kind. Its body is long, measuring usually about two feet, besides the tail, which is nearly sixteen inches; the legs are short, strong, muscular, and so placed, as to be capable of being brought into a line with the body, and performing the functions of fins. - On each foot are five toes, which are webbed, and furnished with strong sharp nails. The eyes are large, brilliant, and so situated in the head, that the animal can see any object that is above it, which adds to the singularity of its aspect. The fur of the otter is deep blackish brown, with two small light spots on each side of the nose, and another under the chin.

The otter is a native of Britain, the whole continent of Europe, and America. Its principal food being fish, it makes its habitation on the banks of rivers, where it burrows to some depth. The burrow is constructed with great sagacity, the entrance of the hole being invariably under water, inclining upwards to the surface of the earth; and before reaching the top, he constructs several lodges, at different heights, to which he may retire, in the event of floods; for, although so much accustomed to a watery element, no animal is more particular in lying quite dry. At the top of the uppermost of these cells, he opens a very small orifice, for the admission of air; and the more effectually to conceal this opening, it is generally in the middle of a thick bush of willows, or other shrubs. When he has caught a fish, he carries it to the bank of the river, and devours the head and upper parts of the body, leaving the rest untouched. He

pursues his prey generally from the bottom upwards, for which the situation of his eyes is adapted.

During winter, in Canada, otters are in the habit of travelling to a considerable distance from rivers, but for what purpose has not been ascertained. In these cases, the Indians track them in the snow, and kill them with clubs, which they carry. The otter is a slow paced animal ; and, if closely pursued, before being overtaken, when the snow happens to be light and deep, he immediately dives a considerable way under it : but this seldom avails him ; for his crafty pursuers can easily trace him by his motions in passing through the snow.

Hunting the otter was a favourite pastime in Britain ; but it has now fallen greatly into disuse. A few otter hounds are, however, still to be found. His Grace the duke of Buccleuch, has some braces of them. During Elizabeth's reign, large packs were kept for this diversion, which was eagerly practised by the young nobles. The otter, when hunted, and overtaken by dogs, defends itself with great obstinacy, never yielding while he has life, and inflicting very severe wounds on his adversaries. He, not unfrequently, fastens like a bull-dog, and seldom quits his hold till killed.

The flesh of the otter is extremely rank and fishy ; on which account, the Romish Church permitted it to be eaten on meagre days. We are informed by Pennant, that, when on his travels, he once entered the kitchen of the Carthusian convent, near Dijon, in France, where he saw an otter cooking for the religious of that rigid order, who, by their rules, were bound to perpetual abstinence from animal food.

The female brings forth in the spring, from four to five at a birth. Their parental affection is so powerful, that they will frequently suffer themselves to be killed rather than quit their progeny ; and this is often the occasion of their losing their lives, when they might otherwise have escaped. Professor Steller says, " Often have I spared the lives of the female otters whose young ones I took away. They expressed their sorrow, by crying like human beings, and followed me as I was carrying off their young, while they called to them for aid, with a tone of voice which very much resembled the crying of children. When I sat down in the snow, they came quite close to me, and attempted to carry off their young. On one occasion, when I

had deprived an otter of her progeny, I returned to the place eight days after, and found the female sitting by the river listless and desponding ; who suffered me to kill her on the spot without making any attempt to escape. On skinning her, I found she was quite wasted away, from sorrow for the loss of her young. Another time, I saw, at some distance from me, an old female otter sleeping by the side of a young one, about a year old. As soon as the mother perceived us, she awoke the young one, and enticed him to betake himself to the river. But, as he did not take the hint, and seemed inclined to prolong his sleep, she took him up in her fore paws and plunged him into the water."

The otter is naturally ferocious ; but when taken young, and properly treated, it can be rendered tame, and taught to catch fish, and fetch them to its master. James Campbell, near Inverness, procured a young otter, which he brought up and tamed. It would follow him wherever he chose ; and, if called on by its name, would immediately obey. When apprehensive of danger from dogs, it sought the protection of its master, and would endeavour to spring into his arms for greater security. It was frequently employed in catching fish, and would, sometimes, take eight or ten salmon in a day. If not prevented, it always made an attempt to break the fish behind the anal fin, which is next the tail ; and, as soon as one was taken away, it always dived in pursuit of more. It was equally dexterous at sea fishing, and took great numbers of young cod, and other fish, there. When tired, it would refuse to fish any longer, and was then rewarded with as much as it could devour. Having satisfied its appetite, it always coiled itself round, and fell asleep : in which state it was generally carried home.

A person who kept a tame otter, taught it to associate with his dogs, who were upon the most friendly terms with it on all occasions ; and it would follow him on different excursions, in company with his canine attendants. He was in the practice of fishing rivers with nets ; on which occasions, the otter proved highly useful to him, by going into the water, and driving trout and other fish towards the net. It was very remarkable, that dogs accustomed to otter hunting were so far from offering it the least molestation, that they would not even hunt any other otter while it remained with them ; on which account, the owner was under the necessity of parting with it.

A man of the name of William Collins, who resided at Kilmerton, near Wooler, in Northumberland, had a tame otter, which followed him wherever he went. He frequently took it to fish in the river for its own food; and when satiated, it never failed to return to its master. One day, in the absence of Collins, the otter being taken out to fish by his son, instead of returning as usual, refused to come at the accustomed call, and was lost. Collins tried every means to recover it; and, after several days' search, being near the place where his son had lost it, and calling it by its name, to his inexpressible joy, it came creeping to his feet.

THE BEAVER.

THE beaver is an animal which naturally excites in man a curiosity to know its history and habits, from the important use of its very fine and valuable fur. It is also remarkable, as producing a secretion which is often successfully employed in medicine; and, perhaps, not less on account of its extraordinary instinct, in building a habitation, formed with architectural regularity. Although many of the lower animals possess this sort of intelligence, certainly there is none so curious as that of the beaver; but in this alone does he display any mark of sagacity.

This animal spends a great part of its time in the water, for which his peculiar conformation admirably adapts him; and he swims and dives with astonishing dexterity. His tail, which is broad, flat, and covered with scales, serves him as rudder in the direction of his motions. He always selects for his abode the side of a lake or river, where the water is deep under the bank, and which keeps at a pretty uniform height. They usually choose the northern side, in consequence of its exposure to the sun; and they always prefer the bank of an island to any other situation, as being more secure from the attacks of enemies. In this respect, however, their instinct often misleads them; for they have been known to select situations where no fish were to be found, and, consequently, have been obliged to change their residence, or submit to famine.

M. de Meyerinck gives an interesting account, in the 'Trans-

actions of the Berlin Natural History Society for 1829,' of a colony of beavers, which has been settled for upwards of a century, in a desert and sequestered canton of the district of Magdeburg, on the banks of a small river, called the Nuthe, about half a mile above its junction with the Elbe. M. Meyerinck says, this small settlement in 1822, only consisted of fifteen or twenty individuals ; but, although they were few in numbers, yet they had executed all the laborious tasks of a more extensive society. They had formed burrows of thirty or forty paces in length, on the level with the stream, with a single opening below the water, and another on the surface of the ground. They had built huts of branches and trunks of trees, to the height of eight or ten feet. These were laid down without any particular form or regularity, and covered over with soft earth. They had also constructed a dam of the same materials, so as to raise the water more than a foot above its natural level.

A similar colony exists at this time in Bohemia, on the river Galdbach, in the lordship of Weltingau, the domain of Prince Schwartzenberg. The industry of these yields in nothing to that of their brethren which inhabit the great rivers and lakes of North America. The abundance of willows, which adorns the banks of this river, furnishes them with both food and dwelling : in summer, they eat the leaves, and in winter, the branches.

When beavers have fixed their habitation on the banks of a shallow stream, which is subject to fluctuations, from a failure of the supply of water, they begin their operations by first throwing a dam across it, a little way below the part they intend to occupy. Where the river is slow, it is made nearly straight ; but where the current is strong, it is formed with a curve, larger, or smaller, in proportion to its rapidity ; the convexity of which is always turned towards the stream. This dam they construct with branches of trees and willow boughs, thickly intermingled with mud and stones ; it is formed in the shape of a mound, thicker at the bottom, and gradually tapering towards the summit, which they make perfectly level, and of the exact height of the water. These dams are constructed with such solidity, that Captain Cartwright informs us he has walked over them. The sticks employed for constructing these dams are from the thickness of a man's thumb to that of his ankle. These the beavers bring from the adjacent woods, gnawing them off with wonder-

ful dexterity. Captain Cartwright says that a beaver will cut through a branch, the thickness of a walking stick, with its teeth, at a single effort, and as neatly as if it had been done by a gardener's pruning knife. If it becomes necessary to use larger trunks, which is sometimes the case, owing to local circumstances, they gnaw them round nearer the base, and take care that their operations shall be so conducted as to make them fall towards the river, to lessen as much as possible the labour of removing them. The operation of cutting must be performed with great rapidity, as many trees are frequently used by them in one season. When a tree has fallen, their first operation is to remove all its branches, and drag them to the stream, throwing them into the water above the dam, and they consequently float down to it.

The houses of the beavers are formed exactly of the same materials as the dams. If the bank be abrupt, they are built immediately under it, but if flat, at some little distance, on the surface of the ground, the floor being so high above the level, that it cannot be flooded. They commence their operations by hollowing out the earth, and forming walls with it, mixed with small sticks and stones. When they have constructed the groundwork and walls, they then proceed to roof it in. This is always in the shape of a dome, generally elevated from four to seven feet above the water. There is a projection formed, which slopes for several feet into the stream, with a regularly inclined plane, so deep as to be beyond the depth at which the water can freeze. Each dwelling has from one to three of these, which are termed angles by the beaver hunters. When beavers form a settlement, they begin to construct their houses in summer; and it generally costs them a whole season to complete their buildings, and lay up a stock of provisions for the winter: this consists of bark, and the tender branches of trees, cut into lengths, and stored up near their domicile under the water, above whose surface it is sometimes raised. The willow, poplar, and birch supply their favourite kind of bark; in summer, they feed also on the water lily, and berries. The inside of their habitation consists generally of various apartments; and it is supposed that each animal of the community has his distinct place of repose, their beds being comfortably lined with moss and grass. These communities usually consist of from two to ten. It not

unfrequently happens, that various families of beavers congregate near the same place, but they keep as distinctly apart as bees; and it is only when the construction of very large dams becomes necessary for their mutual benefit, that their united labours are exerted. The beaver only breeds once a-year, producing two, three, or four at a birth. The young continue associated with their parents for three years, at which time they separate, and commence a new colony of their own. In many cases, however, they remain with the old ones, and increase their dwellings, and thus make a formidable association.

Single beavers sometimes break off their intercourse with the community, and live in retirement, in holes dug in the banks of rivers. These have their opening considerably under the surface of the water, and extend to a considerable height above its highest level, sometimes to the distance of eight or ten feet. These solitary animals are called by the hunters, *hermits*, or *terriers*.

Captain Cartwright says, that the flesh of the beaver is "the most delicious eating in the world," except when they feed on the water lily, which, although it fattens them very much, yet renders the flavour strong and disagreeable.

There are at present in the gardens of the Zoological Society a pair of beavers, which were sent from Canada by the Earl of Dalhousie. Their sight was considerably impaired before they reached this country; one is totally blind, and the other has but one eye. They are kept in an enclosure with a pond. The blind one, in particular, is most persevering in diving for clay, to stop up any crevice in its habitation. They seem to enjoy perfect happiness in their captive state.

The beaver inhabits several countries of Northern Europe, and is extremely numerous in North America, from which country it forms an extensive article of commerce; and, in consequence of the great demand for their fur, they are eagerly sought after by the North American Indians. Their attention was first directed to this trade from a proclamation issued by the British government, so early as the year 1638, which forbade the use of any other article in the manufacture of hats, except the fur of beavers. Since that period, immense numbers of this animal have been destroyed yearly. Some idea may be formed of the quantities which have been killed, from the

following sales :—The Hudson's Bay Company, in 1743, sold twenty-six thousand, seven hundred and fifty skins ; and upward of one hundred and twenty-seven thousand were imported into Rochelle. In the year 1788, more than one hundred and seventy thousand were exported from Canada ; and there were sent to England from Quebec alone, in 1808, the large number of one hundred and twenty-six thousand, nine hundred and twenty-seven. The average value of a beaver's skin is eighteen shillings and ninepence sterling. The skins of cubs a year old are the most valuable, being darker, and more glossy than those of adults ; and the winter coat is always preferable to the summer one. Winter, therefore, is the time in which it is hunted with most ardour. The ordinary method is to place a net at the opening of their domicile, under water, and then break down their houses, upon which they naturally fly to the river, and are thus captured. Another plan is resorted to, which is to break the ice into several holes, and then destroy their houses : and the animal, after remaining as long under water as he is able, is obliged to come to these apertures to breathe, and is then easily caught.

Major Roderfort, of New York, had a tame beaver, which he kept in his house upwards of half a year, and allowed to run about like a dog, The cat of the house had kittens, and she took possession of the beaver's bed, which he did not attempt to prevent. When the cat went out, the beaver would take one of the kittens between his paws, and hold it close to his breast to warm it, and treated it with much affection. Whenever the cat returned, he restored the kitten. The beaver collected all the rags, and soft things he could lay hold of, to make his bed, which was generally in some quiet corner of the house. Sometimes he grumbled, but never attempted to bite. This animal was fed on bread, and sometimes fish was given to him, which he ate very greedily.

The following very interesting account of a tame beaver is taken from the ' Gardens and Menageries of the Zoological Society.' It is from the pen of Mr Broderip. "The animal arrived in this country in the winter of 1825, very young, being small and woolly, and without the covering of long hair, which marks the adult beaver. It was the sole survivor of five or six which were shipped at the same time, and was in a very pitiable condition.

Good treatment soon made it familiar. When called by its name, 'Binny,' it generally answered with a little cry, and came to its owner. The hearth rug was its favourite haunt, and thereon it would lie, stretched out, sometimes on its back, and sometimes flat on its belly, but always near its master. The building instinct showed itself immediately after it was let out of its cage, and materials were placed in its way,—and this before it had been a week in its new quarters. Its strength, even before it was half grown, was great. It would drag along a large sweeping brush, or a warming pan, grasping the handle with its teeth, so that the load came over its shoulder, and advancing in an oblique direction, till it arrived at the point where it wished to place it. The long and large materials were always taken first, and two of the longest were generally laid crosswise, with one of the ends of each touching the wall, and the other ends projecting out into the room. The area formed by the crossed brushes and the wall he would fill up with hand brushes, rush baskets, books, boots, sticks, cloths, dried turf, or any thing portable. As the work grew high, he supported himself on his tail, which propped him up admirably: and he would often, after laying on one of his building materials, sit up over against it, apparently to consider his work, or, as the country people say, 'judge it.' This pause was sometimes followed by changing the position of the material 'judged,' and sometimes it was left in its place. After he had piled up his materials in one part of the room, (for he generally chose the same place,) he proceeded to wall up the space between the feet of a chest of drawers, which stood at a little distance from it, high enough on its legs to make the bottom a roof for him, using for this purpose dried turf and sticks, which he laid very even, and filling up the interstices with bits of coal, hay, cloth, or any thing he could pick up. This last place he seemed to appropriate for his dwelling; the former work seemed to be intended for a dam. When he had walled up the space between the feet of the chest of drawers, he proceeded to carry in sticks, cloths, hay, cotton, and to make a nest; and, when he had done, he would sit up under the drawers, and comb himself with the nails of his hind feet. In this operation, that which appeared at first to be a malformation, was shown to be a beautiful adaptation to the necessities of the animal. The huge webbed hind feet often

turn in, so as to give the appearance of deformities ; but, if the toes were straight, instead of being incurved, the animal could not use them for the purpose of keeping its fur in order, and cleansing it from dirt and moisture. Binny generally carried small and light articles between his right fore leg and his chin, walking on the other three legs ; and large masses, which he could not grasp readily with his teeth, he pushed forwards, leaning against them with his right fore paw and his chin. He never carried any thing on his tail, which he liked to dip in water, but he was not fond of plunging in his whole body. If his tail was kept moist, he never cared to drink, but, if it was kept dry, it became hot, and the animal appeared distressed, and would drink a great deal. It is not impossible that the tail may have the power of absorbing water, like the skin of frogs, though it must be owned, that the scaly integument which invests that member has not much of the character which generally belongs to absorbing surfaces. Bread, and bread and milk, and sugar, formed the principal part of Binny's food ; but he was very fond of succulent fruits and roots. He was a most entertaining creature ; and some highly comic scenes occurred between the worthy, but slow beaver, and a light and airy macauco, that was kept in the same apartment."

An animal so sociable in his habits ought to be affectionate, and very affectionate the beaver is said to be. Drage mentions two young ones, which were taken alive, and brought to a neighbouring factory in Hudson's Bay, where they thrived very fast, until one of them was killed accidentally. The survivor instantly felt the loss, began to moan, and abstain from food, till it died. Mr Bullock mentions a similar instance, which fell under his notice in North America. A male and female were kept together in a room, where they lived happily, till the male was deprived of his partner by death. For a day or two, he appeared to be hardly aware of his loss, and brought food, and laid it before her. At last, finding that she did not stir, he covered her body with twigs and leaves, and was in a pining state, when Mr Bullock lost sight of him.

THE SEAL.

THE Seal or Phoca is a nearer approach to the fish tribe, than either the otter or beaver. Its ordinary length is from five to six feet; the head is large and round, and the neck short and thick; on each side of the mouth are several long and stiff whiskers, each hair being marked, throughout its whole length, by numerous alternate dilations and contractions: there are also a few stiff hairs over each eye; the tongue is cleft at the tip; the legs are so short, as to be scarcely perceptible; the hinder ones are so placed, as to be of use to the animal in swimming, but of very little service when walking, being situated at the extremity of the body, and close to each other. All the feet are strongly webbed, but the hind ones much more widely and conspicuously than the fore, having considerably the appearance of fins; each foot is furnished with strong and sharp claws; the tail is very short. The hair of the seal is short and very thick set, varying in colour, from brown, blackish brown, gray, and sometimes pied, with fawn colour and white. The seal has a very offensive fishy smell: and when collected in numbers on the shore, their odour can be felt at a considerable distance.

This animal spends a great part of its time in the water, although it can live perfectly well on land. In summer, they are frequently to be seen, on some sand bank, which has been left dry by the reflux of the tide; or on some shelving rocks, basking in the sunbeams. It is in these situations that the seal is killed by their hunters in this country. They never enjoy a long state of repose, being very watchful, probably from having no external ears to catch the sound; so that every minute or two they raise their heads, and look round. When they observe an enemy approaching, they suddenly precipitate themselves into the water, or if closely assailed, make a desperate resistance. Every reader of the Waverley Novels will remember the ludicrous encounter between Hector M'Intyre and a seal, which furnished the Antiquary with so rich a fund of banter. The seal swims with great swiftness, dives rapidly, and may be seen rising at a distance of forty or fifty yards, in the course of a few se-

conds. The food of the seal consists of fish, and various sea weeds.

The female produces in the winter, seldom more than two at a birth, which she is said to suckle on the spot for a fortnight only. When the young are fatigued with swimming, the parent carries them on her back. The voice of a full grown seal resembles the hoarse barking of a dog, and that of the young is like the mewling of a kitten.

The skins of seals form a very important article of commerce ; on which account, they are eagerly sought for in many places. They are also valuable for producing oil. The time of hunting them is in October and November. It is generally done by lighting torches, and going into caverns on the sea shore, where these animals repose during the night ; the creatures, being thus surprised, endeavour to retreat in all directions, which the hunters prevent, by knocking them on the head with bludgeons.

Hunting the seal forms an important occupation of the native Esquimaux and Greenlanders. They feed upon its flesh, make oil of its fat, and clothing of its skin ; and even barter the latter to a considerable extent, with vessels which annually go to those places for the purpose. In Finland this is also a favourite and profitable occupation. When the ice begins to break up, a few men go to sea in a small boat, and, in their hazardous pursuit, brave all the horrors of the northern seas ; floating amid broken fields of ice, which every instant threaten the annihilation of their slender bark. The seals in these situations are frequently reposing on shoals of ice, on which some of the party land, and, creeping on their hands and feet, cautiously steal upon them, and kill the animals while they sleep. About twenty years ago, a party of Finlanders, in pursuit of seals, having discovered some on a floating field of ice, they fastened their boat to a point of this little island, and having all left it, they crept towards the seals. While they were busy in their work of destruction, a sudden gust of wind separated the boat from the place where it was attached. They saw it drift amid the numerous shoals, and in a few minutes it was squeezed to pieces, and disappeared. In this deplorable situation every ray of hope vanished ; and they remained, floating to and fro, on this little island, at the mercy of the elements, the sheet of ice every hour diminishing,

from the heat of the sun. Fourteen days did they suffer all the miseries of famine and despair, when they determined on ending their unhappy fate, by drowning. With this intention, they embraced each other for the last time, and were summoning up their resolution of changing from time to eternity, when they happily discovered a sail ; on which one of them took off his shirt, and holding it on the point of his gun, it attracted the attention of some one on board the whale ship, when a boat was immediately manned, and sent to their relief.

Seals when taken young are capable of being completely domesticated ; will answer to their name, and follow their master from place to place. In the notes to Goldsmith, an interesting account will be found of three seals in the French menagerie, upon which M. F. Cuvier made observations. In January, 1819, a gentleman, in the neighbourhood of Burntisland, county of Fife, in Scotland, completely succeeded in taming a seal. Its singularities attracted the curiosity of strangers daily. It appeared to possess all the sagacity of a dog, lived in its master's house, and ate from his hand. In his fishing excursions, this gentleman generally took it with him, when it afforded no small entertainment. If thrown into the water, it would follow for miles the tract of the boat ; and although thrust back by the oars, it never relinquished its purpose. Indeed, it struggled so hard to regain its seat, that one would imagine its fondness for its master had entirely overcome the natural predilection for its native element.

A farmer at Aberdour, Fifeshire, in looking for crabs and lobsters among the rocks, caught a young seal, about two feet and a half long, and carried it home. He gave it some pottage and milk, which it took with avidity. He kept it for three days, always feeding it on this meal, when, his wife tiring of it, he took it away, to restore it to its native element. He was accompanied by some of his neighbours. On reaching the shore, it was thrown into the sea, but, in place of making its escape, as one would have expected, it returned to the men. The tallest of them waded to a considerable distance into the sea, and after throwing it as far from him as he was able, speedily got behind a rock, and concealed himself : but the affectionate animal soon discovered his hiding-place, and crept close up to his feet. The farmer, moved by its attachment, took it home

again. He kept it for some time, when, growing tired of it, he had it killed, we are ashamed to say, for the sake of its skin.

Seals have a very delicate sense of hearing, and are said to be much delighted with music. The fact was not unknown to the ancient poets, and is thus alluded to by Sir Walter Scott:—

Rude Heiskar's seals, through surges dark,
Will long pursue the minstrel's bark.

Mr John Laing, in his account of a voyage to Spitzbergen, mentions that the son of the master of the vessel in which he sailed, who was fond of playing on the violin, never failed to have a numerous auditory, when in the seas frequented by seals: and Mr Laing has seen them follow the ship for miles when any person was playing on deck.

It is a common practice in Cornwall, when persons are in pursuit of seals, as soon as the animal has elevated its head above water, to holla to it, till they can approach within gunshot, as they will listen to the sound for several minutes. I have seen this method pursued by the fishermen at Newhaven.

The SEA BEAR, or URSINE SEAL is an animal of great size, the male measuring about eight feet in length, and the female generally about six feet. Their bodies are thick, somewhat conical, or tapering towards the tail; their greatest circumference is about the shoulders: the weight of a male is about eight hundred pounds. They are inhabitants of the sea, in the neighbourhood of Kamtschatka, and also New Zealand, where they are to be seen lying in thousands along the shore, in distinct families, of from ten to fifty females, each attended by a male, who guards his flock with the assiduity and jealousy of an eastern monarch: and when intruded on by another male, a dreadful conflict ensues, which generally sets the whole colony in a state of tumult. The wounds they give each other are very deep, and resemble the cut of a sabre.

The BOTTLE-NOSED SEAL. The male of the bottle-nosed seal measures from fifteen to twenty feet in length, and is distinguished from the female by a projecting snout, which hangs several inches over the under jaw: the upper part consists of a loose wrinkled skin, which the animal can inflate when angry. The feet are short, and the hind ones webbed, somewhat like fins. The whiskers are long and thick. The general colour is of a

rusty brown. The female never exceeds eighteen feet in length ; her nose is blunt and tuberosus at the top ; the nostrils are wide, the mouth small. The bottle-nosed seal inhabits the seas about New Zealand, and the Falkland Islands. They are to be met with in immense bodies at Juan Fernandez, during the breeding season, which is in June and July. The females usually produce two at a birth, which is rare with animals of so large a size ; they are very fierce while suckling their cubs.

On the 21st June, 1818, above two hundred bottle-nosed seals came into Stornoway harbour, when a desperate battle ensued between them. The inhabitants of the place, taking advantage of the conflict, attacked them with axes, swords, and knives, so that few of these extraordinary combatants escaped. Some of them measured above twenty feet in length, by fifteen in circumference.

The bottle-nosed seal is, in general, very inactive ; but, when irritated, is exceedingly revengeful. A sailor, who had killed a young one, was in the act of skinning it, when its mother approached him unperceived, and, seizing him in her mouth, bit him so dreadfully, that he died of the wound a few days afterwards.

THE WALRUS.

THIS is one of the most clumsy animals in nature, with a head uncommonly small for the size of the body ; the neck is short ; the lips are very thick,—the upper one cleft, studded with strong semitransparent bristles, as thick as a crow quill, about three inches long, and slightly pointed at the extremities. The body is thick, and gradually tapering towards the tail. The skin of the whole animal is thick, and somewhat wrinkled on various parts of the body, covered with short brownish hair. This enormous animal sometimes measures eighteen feet in length, and from ten to twelve in circumference, over the chest. Sir Everard Home has discovered, that the hind foot of the walrus has an apparatus like that of the foot of a fly, by which it is enabled to carry on progression against gravity. In its operations, it resembles that of a cupping-glass. In its bony structure, it has a striking resemblance to the human hand.

The walrus is a harmless creature, and inhabits the seas about

North America, Davis's Straits, Hudson's Bay, and Greenland, and also in the Gulf of St Lawrence. It is a gregarious animal, and is often met with in immense numbers. They will never make an attack ; but when roused, are very fierce and vindictive. The females generally repose on the ice with their young ; and, if attacked, they convey the cubs to the water, and then return to avenge any injury they have sustained ; when wounded, they have been known to dive to the bottom, and bring up a host of others to join them in an attack, when their roaring is fearfully wild, and all the time they gnash their teeth violently.

Early in the spring the walruses, from almost every quarter, congregate in the Gulf of St Lawrence, spreading themselves over the group called the Magdalene Islands, which seem highly calculated to supply their wants, as they abound in a great variety of large shell-fish ; and from the shores being of a gentle slope, with few precipitous rocks, they are enabled easily to scramble on shore, where they remain occasionally for many days without food, when the weather is fine ; but on the slightest appearance of rain, they precipitate themselves into the sea. In former times, before the Americans made a traffic of the oil of the walrus, they have been known to assemble in these islands to the amount of eight or ten thousand ; but their numbers are now much decreased in that quarter. The natives of these islands do not attack the walruses on their first arrival, but allow them to repose quietly for some time, and frequently show themselves, to accustom them not to be afraid of men. At a fixed time, the people assemble in boats, and land in the dark, near the place where many of these animals are reposing, and separate those that are farthest inland from those that are next the water. This is termed making a *cut* by those fishermen ; and a dangerous enterprise it is ; for many fall victims to their combined fury. They kill as many as possible of those next the water, and then attack the others. The creatures get bewildered, from the darkness of the night, and the effect of torch light ; and, straying farther from the water, become an easy prey. Sometimes, in a single attack of this kind, from a thousand to fifteen hundred have fallen victims in one night. The first operation is to skin the animal, and cut it into slices, of two or three inches in breadth. These are imported to America for carriage traces ; and the short pieces are sent to England, for making

into glue. They then remove the coat of fat which lies under the hide, melt it into oil, of which each walrus produces nearly two barrels. The tusks, which weigh from ten to twelve pounds each, are then sawn off, and sell at pretty high prices, as they are ivory of a very hard texture, and much used by dentists, in making artificial teeth. The weight of a walrus is from fifteen hundred to two thousand pounds.

In early times this animal was called a horse-whale, and seems to have been known in England so early as the year 890, during the reign of King Alfred; for we are informed by Hakluyt, during that year, a voyage was made beyond the North Cape, by Octher, the Norwegian, "for the mere commoditie of fishing of horse-whales, which have in their teeth bones of great price and excellence; whereof he brought some on his returne unto that king." The same author says, that the skins of horse-whales and seals were converted into cables of sixty ells in length, by the natives of northern Europe.

In the memorable voyage of Captain Cook, he describes having met with a herd of walruses off the north coast of America. "They lie in herds of many hundreds," says he, "upon the ice, huddling over one another, like swine; and roar or bray so very loud, that in the night, or in foggy weather, they gave us notice of the vicinity of the ice, before we could see it. We never found the whole herd asleep, some being always upon the watch. These, on the approach of the boat, would awake those next to them; and the alarm being thus gradually communicated, the whole herd would be awake presently. But they were seldom in a hurry to get away, till after they had been once fired at. They then would tumble over one another into the sea, in the utmost confusion; and, if we did not, at the first discharge, kill those we fired at, we generally lost them, though mortally wounded. They did not appear to us to be that dangerous animal which some authors have described, not even when attacked. They are more so in appearance than reality. Vast numbers of them would follow, and come close up to the boats; but the flash of the musket in the pan, or even the bare pointing of one at them, would send them down in an instant. The female will defend her young to the very last, at the expense of her own life, whether in the water or upon the ice. Nor will the young one quit the dam, though she be dead; so that, if one is killed, the

other is certain prey. The dam, when in the water, holds the young one between her fore arms."

In the year 1766, a vessel, which had gone to the North Seas, to trade with the Esquimaux, had a boat out with a party of the crew. A number of walruses attacked them; and, notwithstanding every effort to keep them at bay, a small one contrived to get over the stern of the boat, looked at the men for some time, and then plunged into the water, to rejoin his companions. Immediately after, another one, of enormous bulk, made the same attempt to get over the bow, which, had he succeeded, would have upset the boat; but, after trying every method in vain, to keep him off, the boatswain lodged the contents of a gun, loaded with goose shot, into the animal's mouth, which killed him; and he immediately disappeared, and was followed by the whole of the herd. Seeing what had happened to their companion, the enraged animals soon followed the boat; but it luckily reached the ship, and all hands had got on board before they came up: otherwise, some serious mischief would have befallen the boat's crew.

OF THE MONKEY KIND.

THE resemblance which the monkey tribe bear, more or less, to man, gives an interest to all their doings, and invests them with an apparent sagacity and shrewdness which no other animal possesses. Yet in reality, they do not stand at the head of the brute creation, either mentally or physically, being found to be far inferior in both these respects to several other animals, such as the dog, the elephant, and the horse. Their greatest faculty lies in a power of imitation, which they possess to an astonishing degree, and which, being generally displayed upon the lords of the creation, places poor humanity often in very ludicrous and humiliating positions. Monkeys are popularly divided into Apes, Baboons, and Monkeys Proper. To the apes belong the Chimpanzé and Oran-outang, the largest and most perfect of the monkey tribe.

THE CHIMPANSE.

THE chimpanzé, both in face, form, and internal organization, approaches very nearly to the human species. No adult specimen has ever yet reached Europe, the largest having only measured about three feet six inches, and, from the state of its dentition, being evidently immature. There is a strong probability that this is the wild man of the woods mentioned by travellers. He differs from the orang-outang, in wanting an intermaxillary bone, and the last joint of his great toe is perfect. He also possesses the round ligament of the thigh bone; from which it is evident he is more fitted than the orang, for assuming the upright position. His facial angle is only about 50 deg. while that of the other species is 65 deg. The few young specimens of this animal which have been brought to Europe, evinced a considerable

degree of melancholy, and were much more docile and submissive than those oranges whose habits naturalists have described.

The chimpansé seems entirely confined to the inter-tropical regions of Central Africa, and perhaps some of the islands in the same latitude. He appears to have been known to the ancients, from a description we have of large apes, found in an island on the western coast of Africa, by Hanno, a Carthaginian admiral, three hundred and thirty-six years previous to the Christian era. He says—"There were many more females than males, all equally covered with hair on all parts of the body. The interpreters called them *gorilbes*. On pursuing them, they could not succeed in taking a single male; they all escaped with astonishing swiftness, and threw stones at us: but we took three females, who defended themselves with so much violence, that we were obliged to kill them: but we brought their skins, stuffed with straw, to Carthage."*

We are told by Francois Pyard, that, in the neighbourhood of Sierra Leone, on the coast of Africa, apes are to be found of a robust structure of body, which walk upright, are strong and active, and are sometimes trained to perform menial offices. They have been taught to pound substances in a mortar, and fetch water from the river in jugs. But unless these are immediately taken from them on their arrival at the door, they let them fall: and, when they see them lying broken in pieces, they utter a lamentable kind of cry. Schouten's account of certain apes which he saw, so far agrees with that of Pyard; for he says he has seen them trained to various kinds of labour; namely, to rinse out glasses, carry liquor about to a company at table, and turn a spit, &c. It seems extremely probable that these are the young chimpansé.

Speaking of the chimpansé of Africa, M. De Grandpré says, †—"His sagacity is extraordinary; he generally walks upon two legs, supporting himself with a stick. The negro fears him, and not without reason, as he sometimes treats him very roughly." M. de Grandpré saw, on board of a vessel, a female chimpansé, which exhibited wonderful proofs of intelligence. She had learnt to heat the oven; she took great care not to let any of the coals fall out, which might have done mis-

* Hannonis Periplus, translated by V. Berkel.

† Voyage to the Coast of Africa.

chief in the ship; and she was very accurate in observing when the oven was heated to the proper degree, of which she immediately apprized the baker, who, relying with perfect confidence upon her information, carried his dough to the oven as soon as the chimpansé came to fetch him. This animal performed all the business of a sailor, spliced ropes, handled the sails, and assisted at unfurling them; and she was, in fact, considered by the sailors as one of themselves. The vessel was bound for America; but the poor animal did not live to see that country, having fallen a victim to the brutality of the first mate, who inflicted very cruel chastisement upon her, which she had not deserved. She endured it with the greatest patience, only holding out her hands in a suppliant attitude, in order to break the force of the blows she received. But from that moment she steadily refused to take any food, and died on the fifth day from grief and hunger. She was lamented by every person on board, not insensible to the feelings of humanity, who knew the circumstances of her fate.

THE ORANG-OUTANG.

THE orang-outang is an inhabitant of Cochin-China, Borneo, Malacca, Sumatra, and several of the larger islands of the Indian Archipelago. He is next in order to the chimpanse in his resemblance, in external conformation, to the human species, and is endowed with considerable intelligence. He lives in remote situations, avoiding man, and is, consequently, rarely seen in a full grown state. He is of gigantic stature, measuring from seven and a half to eight feet. Much confusion has existed regarding this species, as it has been confounded in its immature state with the chimpanse, and other larger apes. We have had many vague accounts and fables concerning it. All that have hitherto reached Europe, have been young ones; and probably the change of climate has checked their growth; for these animals are found only under a tropical sun, and their geographical range is excessively limited. It was not till the description of the animal, by Dr Clarke Abel, in May, 1825, that we had any satisfactory account of the great wild man of the woods. This will be found given at large in the Notes to Goldsmith.

The orang which was in Holland in 1776 most commonly

walked on all fours, like other apes ; but she could also walk erect. When, however, she assumed this posture, her feet were not usually extended like those of a man, but the toes were curved beneath, in such a manner that she rested chiefly on the exterior sides of the feet. One morning she escaped from her chain, and was seen to ascend with wonderful agility the beams and oblique rafters of the building. With some trouble she was retaken, and very extraordinary muscular powers were on this occasion remarked in the animal. The efforts of four men were found necessary in order to secure her. Two of them seized her by the legs, and a third by the head, whilst the other fastened the collar round her body. During the time she was at liberty, among other pranks, she had taken a bottle of Malaga wine, which she drank to the last drop, and then set the bottle again in its place. She ate readily of any kind of food which was presented to her ; but her chief sustenance was bread, roots, and fruit. She was particularly fond of carrots, strawberries, aromatic plants, and roots of parsley. She also eat meat, boiled and roasted, as well as fish, and was fond of eggs, the shell of which she broke with her teeth, and then emptied by sucking out the contents. If strawberries were presented to her on a plate, she would pick them up, one by one, with a fork, and put them into her mouth, holding, at the same time, the plate in the other hand. Her usual drink was water ; but she also would drink very eagerly all sorts of wine, and of Malaga in particular she was very fond. While she was on ship board, she ran freely about the vessel, played with the sailors, and would go like them into the kitchen for her mess. When, at the approach of night, she was about to lie down, she would prepare the bed on which she slept by shaking well the hay, and putting it in proper order ; and, lastly, would cover herself up snugly in the quilt.* One day, on noticing the padlock of her chain opened with a key, and shut again, she seized a little bit of stick, and putting it into the keyhole, turned it about in all directions, endeavouring to open it. When this animal first arrived in Holland, she was only two feet and a half high, and was almost

* The same thing is mentioned by M. Le Guat. When he was at Java, he saw one make her bed very neatly every day, lie upon her side, and cover herself with the clothes. She often bound up her head with a handkerchief, and lay in bed in that state.

entirely free from hair on any part of her body, except her back and arms ; but, on the approach of winter, she became thickly covered all over, and the hair on her back was at least six inches long, of a chestnut colour, except the face and paws, which were somewhat of a reddish bronze colour. This interesting brute died, after having been seven months in Holland.

M. Le Compte saw an orang-outang in the Straits of Malacca, all the actions of which were so expressive and lively, that a dumb person could scarcely have rendered himself better understood. He was kind and gentle, exhibiting great affection for all those from whom he received any attentions. One thing was very remarkable, that, like a child, he would frequently make a stamping noise with his feet, for joy or anger.

His agility was astonishing. He would run about with the greatest ease and security among the rigging of the ship, vaulting from rope to rope, and playing a thousand amusing pranks, as if he had pleasure in exhibiting his feats before the company. Sometimes, suspended by one arm, he would poise himself, and then suddenly turn round upon a rope, with nearly as much quickness as a wheel. He would sometimes slide down a rope, and again ascend, with astonishing rapidity. There was no posture which this animal was incapable of imitating, nor any motion that he could not perform. He has been frequently known to fling himself from one rope to another, at a distance of more than thirty feet ; evincing, in all his feats, great muscular strength.

Dr Abel says the orang-outang does not practise the grimaces nor uncouth antics of other apes, and is, besides, less given to mischief. Gravity and mildness are usually depicted in his countenance.

Gemelli Carreri, in his voyage round the world, relates a circumstance concerning the orang-outang, in its wild state, which is indicative of very considerable powers, both of reflection and invention. When the fruits on the mountains are exhausted, they will frequently descend to the sea-coast, where they feed on various species of shell-fish, but, in particular, on a large sort of oyster, which commonly lies open on the shore. " Fearful," he says, " of putting in their paws, lest the oyster should close and crush them, they insert a stone as a wedge within the shell ; this prevents it from shutting, and they then drag out their prey,

and devour it at their leisure." Milo of old might have saved his life, had he been only half as wise.

A female orang-outang was brought alive into Holland from the island of Borneo, in the year 1776, and lodged in the menagerie of the Prince of Orange. She was extremely gentle, and exhibited no symptoms whatever of fierceness or malignity. She had a somewhat melancholy appearance, yet loved to be in company, and particularly with those persons to whose care she was committed. Oftentimes, when they retired, she would throw herself on the ground, as if in despair, uttering the most doleful cries, and tearing in pieces any article of linen that happened to be within her reach. Her keeper having sometimes sat near her on the ground, she would frequently take the hay off her bed, arrange it by her side, and, with the greatest anxiety and affection, invite him to sit down.

M. Palavicini, who held an official situation at Batavia, in the year 1759, had in his house two orang-outangs, a male and female, which were extremely mild and gentle. They were nearly of human stature, and imitated very closely the actions of men, particularly with their hands and arms. In some respects, they had a degree of bashfulness and modesty, which is not observable in savage tribes of the human race. If, for instance, the female was attentively looked at by any person, she would throw herself into the arms of the male, and hide her face in his bosom.

M. de la Bosse purchased of a negro two orang-outangs, male and female, that were only about a year old. "We had," says he, "these animals with us on ship board. They ate at the same table with us. When they wanted any thing, they, by certain signs, acquainted the cabin boy with their wishes; and, if he did not bring it, they sometimes flew into a rage at him, bit him in the arm, and not unfrequently threw him down. The male fell sick during the voyage, and submitted to be treated like a human patient. The disease being of an inflammatory nature, the surgeon bled him twice in the right arm; and when he afterwards felt himself indisposed, he used to hold out his arm to be bled, because he recollected that he found himself benefited by that operation on a former occasion."

THE APE.

THE above notices regard the two more perfect specimens of the ape genus. What we have to add under the present head, relates to apes in general. Their power of imitation we have already adverted to ; and their propensity to indulge in it, not unfrequently proves fatal to them, as it is often made a means of entrapping them. The ape-catchers take a vessel filled with water, and wash their hands and face in a situation where they are sure to be observed by the apes. After having done so, the water is poured out, and its place supplied by a solution of glue ; they leave the spot, and the apes then seldom fail to come down from their trees, and wash themselves in the same manner as they have seen the men do before them. The consequence is, that they glue their eyelashes so fast together, that they cannot open their eyes, or see to escape from their enemy. The ape is fond of spirituous liquors, and these are also used for the purpose of entrapping them. A person places, in their sight, a number of vessels filled with ardent spirits, pretends to drink, and retires. The apes, ever attentive to the proceedings of man, descend, and imitate what they have seen, become intoxicated, fall asleep, and are thus rendered an easy conquest to their cunning adversaries. In the ' General History of Travels,' we are told that persons who catch apes in Africa, by means of traps, are seldom successful more than once in the same district ; so soon do these animals become acquainted with the artifices employed against them. When they perceive an ape wounded, the community never fails to fly to his assistance. It has been said, that, if wounded by an arrow, they will not pull it out, and thereby lacerate the flesh, but bite off the shaft, to enable their unfortunate brother to escape with greater facility.

The Indians make their proneness to imitation useful ; for, when they wish to collect cocoa-nuts, and other fruits, they go to the woods where these grow, which are generally frequented by apes and monkeys, gather a few heaps, and withdraw. As soon as they are gone, the apes fall to work, imitate every thing they have seen done, and when they have gathered together a considerable number of heaps, the Indians approach, the apes fly to the trees, and the harvest is conveyed home.

Le Vaillant who was an accurate observer of nature, says,

"The ape is an animal that never uses himself to discipline. He possesses such perfection of instinct, that he can render very important services to man, as mine (a dog-faced baboon which he had in Africa) did to me upon a variety of occasions. But even when he displays his inventive faculty, and renders himself useful, he has always only his own, not his master's interest at heart. Certainly no animal on earth is more ingenious and cunning than he; but when he is to be *obliged* to do any thing, he is quite stupid and awkward. It is only by often keeping him without food, and beating him, that he can be trained to certain acts; whereas it is impossible to break him off several of his natural faults. He is lascivious, gluttonous, thievish, revengeful, passionate; and not a liar, the natives say, because he *will not speak*."

Froger says, that, on the banks of the Gambia, apes are larger and more malicious than in any other parts of Africa. The negroes of that district stand in great dread of them, for they seldom go into the fields alone, without being attacked. These audacious animals carry clubs, which they brandish in defiance, and with which they frequently maltreat the defenceless negroes.

Apes, in general, live very peaceably together. In large and fertile solitudes, sometimes whole herds of them, of different species, chatter together, without any dispute or disorder arising, and without one species intermingling with another. But if any marauders intrude upon a district, of which another community is in possession, they combine to assert their rights. M. de Maisoupre, and six other Europeans, were spectators of such a contest, which took place within the wall which surrounds the pagoda of Cheringham. A large and strong ape had privately got into the place, but was soon discovered by the resident tribe. Upon the first alarm-cry, a number of males immediately united together in an attack upon the interloper. Although the latter was much larger and stronger than his assailants, yet he soon perceived that he was in danger from the fury of their united attack, and fled for refuge to the top of the pagoda, which was eleven stories high, whither he was closely pursued by his enemies. When he found himself at the top of the building, which terminated in a small narrow dome, he took a secure position, and, availing himself of the advantages of his situation, seized upon

four of the most impetuous of his pursuers, and threw them down. These proofs of his prowess intimidated the rest, who thought proper, after a great deal of noise, to make good their retreat. The victor kept his post till the evening, and then escaped to a place of security.

Apes and monkeys, in many parts of India, are made objects of religious veneration, and magnificent temples are erected to their honour. In these countries, they propagate to an alarming extent; they enter cities in immense troops, and even venture into the houses. In some places, however, as in the kingdom of Calicut, the natives find it necessary to have their windows latticed, to prevent the ingress of these intruders, who lay hands without scruple upon every eatable within their reach. There are three hospitals for monkeys in Amadabad, the capital of Guzerat, where the sick and lame are fed and relieved by medical attendants.

Bindrabund, a town of Agra, in India, is in high estimation with the pious Hindoos, who resort to it from the most remote parts of the empire, on account of its being the favourite residence of the god Krishna. The town is embosomed in groves of trees, which, according to the account of Major Thorn, are the residence of innumerable apes, whose propensity to mischief is increased by the religious respect paid to them, in honour of Hunaman, a divinity of the Hindoo mythology, wherein he is characterized under the form of an ape. In consequence of this degrading superstition, such numbers of these animals are supported by the voluntary contributions of pilgrims, that no one dares to resist or ill treat them. Hence, access to the town is often difficult; for, should one of the apes take an antipathy against any unhappy traveller, he is sure to be assailed by the whole community, who follow him with all the missile weapons they can collect, such as pieces of bamboo, stones, and dirt, making, at the same time, a most hideous howling. Of the danger attending a recounter with enemies of this description, a melancholy instance occurred in the year 1808. Two young cavalry officers, belonging to the Bengal army, having occasion to pass this way, were attacked by a body of apes, at whom one of the gentlemen inadvertently fired. The alarm instantly drew the whole body, with the fakeers, out of the place, with so much fury, that the officers, though mounted upon elephants, were

compelled to seek their safety in flight ; and, in endeavouring to pass the Jumna, they both perished.

Tavernier tells us, that, returning from Agra with the English president to Surat, they passed within four or five leagues of Amenabad, through a little forest of mangoes. " We saw here," says he, " a vast number of very large apes, male and female, many of the latter having their young in their arms. We were each of us in our coaches ; and the English president stopt his, to tell me, that he had a very fine new gun ; and knowing that I was a good marksman, desired me to try it, by shooting one of the apes. One of my servants, who was a native of the country, made a sign to me not to do it ; and I did all that was in my power to dissuade the gentleman from his design, but to no purpose ; for he immediately levelled his piece, and shot a she ape, who fell through the branches of the tree on which she was sitting, her young ones tumbling at the same time out of her arms on the ground. We presently saw that happen, which my servant apprehended ; for all the apes, to the number of sixty, came immediately down from the trees, and attacked the president's coach, with such fury, that they must infallibly have destroyed him, if all who were present had not flown to his relief, and by drawing up the windows, and posting all the servants about the coach, protected him from their resentment."

A striking instance of the audacity of the ape in attacking the human species, is related by M. Mollien, in his ' Travels in Africa.' A woman going with millet and milk to a vessel, from St Louis, which had been stopped before a village in the country of Golam, was attacked by a troop of apes, from three to four feet high ; they first threw stones at her, on which she began to run away ; they then ran after her, and, having caught her, they commenced beating her with sticks, until she let go what she was carrying. On returning to the village, she related her adventure to the principal inhabitants, who mounted their horses, and, followed by their dogs, went to the place which served as a retreat to this troop of apes. They fired at them, killed ten, and wounded others, which were brought to them by the dogs ; but several negroes were severely wounded in this encounter, either by the stones hurled at them by the apes, or by their bites ; the females especially were most furious in revenging the death of their young ones, which they carried in their arms.

D'Obsonville, speaking of the sacred haunts of apes in different parts of India, says, that in the course of his travels through that country, he occasionally went into the ancient temples, in order to rest himself. He noticed always that several of the apes, which abounded there, first observed him attentively, then looked inquisitively at the food which he was about to take, betraying, by their features and gestures, the great desire which they felt to partake of it with him. In order to amuse himself upon such occasions, he was generally provided with a quantity of dried peas : of these he first scattered some on the side where the leader stood (for, according to his account, the apes always obey some particular one as their leader,) upon which the animal gradually approached nearer, and gathered them eagerly up. He then held out a handful to the animal ; and as they seldom see any person who harbours any hostile intentions against them, the ape ventured slowly to approach, cautiously watching, as it seemed, lest any trick might be played upon him. At length, becoming bolder, he laid hold, with one of his paws, of the thumb of the hand in which the peas were held out to him, while, with the other, he carried them to his mouth, keeping his eyes all the while fixed upon those of M. d'Obsonville. " If I happened to laugh," he observes, " or to move myself, he immediately gave over eating, worked his lips, and made a kind of growling noise, the meaning of which was rendered very intelligible to me by his long canine teeth, which he occasionally exhibited. If I threw some of the peas to a distance from him, he sometimes seemed pleased to see other apes pick them up ; though, at other times, he grumbled at it, and attacked those who approached too near to me. The noise which he made, and the apprehensions he showed, though they might perhaps proceed, in some measure, from his own greediness, evidently proved, however, that he feared I might take advantage of their weakness, and so make them prisoners. I also observed, that those whom he suffered to approach the nearest to me, were always the largest and strongest of the males : the young and the females he always obliged to keep at a considerable distance from me."

It was with much delight that M. d'Obsonville witnessed the care and tenderness which the female apes evinced towards their young in a completely wild state. They watched them with

maternal affection, and, at the same time, kept them under great subordination. He saw them suckle their young, caress them, clean them of the vermin they had about them, and, after putting them on the ground, watch their sports with great apparent satisfaction. The little ones threw each other down, chased one another, and gambolled like little children. When any of them were guilty of a malicious trick, the mother laid hold of the aggressor by the tail, with one of her paws, and with the other boxed his ears. When she quitted her hold, some of them ran off to a distance; and, when they found themselves out of danger, they approached again with suppliant gestures, although they were soon again guilty of similar misbehaviour.

THE BABOON.

THE common Baboon is an inhabitant of the hottest parts of Africa, grows to three and even four feet in height, and is particularly muscular in the chest and shoulders. He is more ferocious than others of the monkey tribe, and is rarely tamed or brought into obedience. In a state of captivity, he must be kept closely confined. The general colour of the baboon is grayish-brown; the face is of a tawny flesh colour, with a large tuft of hair on each side, extending half way down the muzzle, and surmounted by a large bunch at top, which has altogether much the form of a toupet, giving the animal a very grotesque appearance. This species is very numerous in Siam, where they frequently sally forth in astonishing multitudes to attack the villages, during the time the peasants are occupied in the rice harvest, and plunder their habitations of whatever provisions they can lay their paws on. Fruits, corn, and roots, are their usual food, although they will also eat flesh. When hunted, the baboon often makes very formidable resistance to dogs; their great strength and long claws enabling them to make a stout defence; and it is with difficulty a single dog can overcome them, except when they are gorged with excessive eating, in which they always indulge when they can.

Some years ago, Mr Rutter, doing duty at the castle of Cape Town, kept a tame baboon for his amusement. One evening it broke its chain unknown to him. In the night, climbing up into the belfry, it began to play with, and ring the bell. Immediate-

ly the whole place was in an uproar, some great danger being apprehended. Many thought that the castle was on fire ; others, that an enemy had entered the bay, and the soldiers began actually to turn out, when it was discovered that the baboon had occasioned the disturbance. On the following morning, a court-martial was summoned, when Cape justice dictated, that, whereas Master Rutter's baboon had unnecessarily put the castle into alarm, the master should receive fifty lashes ; Mr Rutter, however, found means to evade the punishment.

The following circumstance is truly characteristic of the imitative powers of the baboon :—The army of Alexander the Great marched in complete battle array into a country inhabited by great numbers of baboons, and encamped there for the night. The next morning, when the army was about to proceed on its march, the soldiers saw, at some distance, an enormous number of baboons, drawn up in rank and file, like a small army, with such regularity, that the Macedonians, who could have no idea of such a manœuvre, imagined at first that it was the enemy, drawn up to receive them.

The RIBBED-NOSE BABOON usually measures five feet when full grown. The head is very large, in proportion to the size of the body : the face naked, and the cheeks are of a clear violet blue colour, with various oblique furrows. The whole nose is of a bright scarlet, having more the appearance of being an artificial, than a natural production. The eyes are extremely small, but acute and sparkling ; the irides are of a fine hazel colour. The hair on the sides of the head is long, mostly growing upwards, and terminating on the crown in an acute pointed form. The beard is long, erect, and of a yellowish hue. The whole body is covered with stiff, bristle-like hairs, each of which is annulated with black and yellow ; and the general colour appears of a greenish cast. The canine teeth are remarkable for their great length and strength. It is scarcely possible to suppose a more disgusting looking creature than this. He is of a fierce and savage nature ; and, even in the highest state of domestication, is not to be depended on, from his naturally treacherous disposition. He is an animal of very great strength, more especially in his chest and arms, which are extremely muscular.

When young, the ribbed-nose baboon has sometimes been known to evince attachment to man, and to exhibit feelings of

tenderness to those with whom he is acquainted ; but when he approaches the adult state, all these forsake him, and he becomes fretful, capricious, and wicked. When irritated, he manifests a horrid fierceness, and utters a hideous cry, which has somewhat the sound of the lion's roar, but more approaching a grunt. He inhabits the Gold Coast, and various districts of Africa. He lives on fruits and roots ; and, in a domesticated state, eats bread freely. I lately inspected a fine specimen of this animal, in the menagerie of Mr Wombwell, which, although tolerably tame, was not to be trusted. On one occasion, when Mr Wombwell was showing me the consistence of the callosity on his nose, I happened to put my face too near the bars of his cage, when he forced his hands suddenly through them, and had nearly deprived me of one of my eyes. This animal was fond of carrots, fruits, potatoes, and bread ; and was very partial to nuts, which he cracked. He liked fermented liquors, and ginger beer was a favourite beverage with him.

The DOG-FACED BABOON.—Immense troops of these animals inhabit the mountains, in the neighbourhood of the Cape of Good Hope, whence they descend to the plains to devastate the gardens and orchards. In their plundering excursions, they are very cunning, always placing sentinels, to prevent the main body from being surprised. They break the fruit to pieces, cram it into their cheek pouches, and keep it until hungry. Whenever the sentinel discovers a man approaching, he sets up a loud yell, which makes the whole troop retreat with the utmost precipitation. They have been known to steal behind an unwary traveller resting near their retreats, and carry off his food, which they would eat at a little distance from him ; and, with absurd grimaces and gestures, in ridicule, offer it back ; at the same time greedily devouring it.

The following account is given by Lade ;—" We traversed a great mountain in the neighbourhood of the Cape of Good Hope, and amused ourselves with hunting large apes, which are very numerous in that place. I can neither describe all the arts practised by these animals, nor the nimbleness and impudence with which they returned, after being pursued by us. Sometimes they allowed us to approach so near, that I was almost certain of seizing them. But, when I made the attempt, they sprang, at a single leap, ten paces from me, and mounted trees with

equal agility, from whence they looked at us with great indifference, and seemed to derive pleasure from our astonishment. Some of them were so large, that, if our interpreter had not assured us they were neither ferocious nor dangerous, our number would not have appeared sufficient to protect us from their attacks. As it could serve no purpose to kill them, we did not use our guns. But the captain levelled his piece at a very large one, that had rested on the top of a tree, after having fatigued us a long time in pursuing him : this kind of menace, of which the animal perhaps recollected his having sometimes seen the consequences, terrified him to such a degree, that he fell down motionless at our feet, and we had no difficulty in seizing him ; but when he recovered from his stupor, it required all our dexterity and efforts to keep him. We tied his paws together ; but he bit so furiously, that we were under the necessity of binding our handkerchiefs over his head."

Le Vaillant had a dog-faced baboon with him, upon his expedition through the southern part of Africa, to which he gave the name of Kees. This animal was of great service to him ; for he was a better sentinel than any of his dogs, and often gave him warning of the approach of beasts of prey, when the dogs seemed to know nothing of the matter. "I made him," says Le Vaillant, "my taster. Whenever we found fruits or roots, with which my Hottentots were unacquainted, we did not touch them till Kees had tasted them. If he threw them away, we concluded that they were either of a disagreeable flavour, or of a pernicious quality, and left them untasted. The ape possesses a peculiar property, wherein he differs greatly from other animals, and resembles man,—namely, that he is by nature equally gluttonous and inquisitive. Without necessity, and without appetite, he tastes every thing that falls in his way, or that is given to him. But Kees had a still more valuable quality,—he was an excellent sentinel ; for, whether by day or night, he immediately sprang up on the slightest appearance of danger. By his cry, and the symptoms of fear which he exhibited, we were always apprized of the approach of an enemy, even though the dogs perceived nothing of it. The latter at length learned to rely upon him with such confidence, that they slept on in perfect tranquillity. I often took Kees with me when I went a-hunting ; and when he saw me preparing for sport, he exhibited

the most lively demonstrations of joy. On the way, he would climb into the trees, to look for gum, of which he was very fond. Sometimes he discovered to me honey, deposited in the clefts of rocks, or hollow trees. But, if he happened to have met with neither honey nor gum, and his appetite had become sharp by his running about, I always witnessed a very ludicrous scene. In those cases, he looked for roots, which he ate with great greediness, especially a particular kind, which, to his cost, I also found to be very well tasted and refreshing, and therefore insisted upon sharing with him. But Kees was no fool. As soon as he found such a root, and I was not near enough to seize upon my share of it, he devoured it in the greatest haste, keeping his eyes all the while riveted on me. He accurately measured the distance I had to pass, before I could get to him ; and I was sure of coming too late. Sometimes, however, when he had made a mistake in his calculation, and I came upon him sooner than he expected, he endeavoured to hide the root, in which case, I compelled him, by a box on the ear, to give me up my share. But this treatment caused no malice between us ; we remained as good friends as ever. In order to draw these roots out of the ground, he employed a very ingenious method, which afforded me much amusement. He laid hold of the herbage with his teeth, stemmed his fore feet against the ground, and drew back his head, which gradually pulled out the root. But if this expedient, for which he employed his whole strength, did not succeed, he laid hold of the leaves as before, as close to the ground as possible, and then threw himself heels over head, which gave such a concussion to the root, that it never failed to come out.

“ When Kees happened to tire on the road, he mounted upon the back of one of my dogs, who was so obliging as to carry him whole hours. One of them, that was larger and stronger than the rest, hit upon a very ingenious artifice, to avoid being pressed into this piece of service. As soon as Kees leaped upon his back, he stood still, and let the train pass, without moving from the spot. Kees still persisted in his intention, till we were almost out of his sight, when he found himself at length compelled to dismount, upon which both the baboon and dog exerted all their speed to overtake us. The latter, however, gave him the start, and kept a good look-out after him, that he might

not serve him in the same manner again. In fact, Kees enjoyed a certain authority with all my dogs, for which he perhaps was indebted to the superiority of his instinct. He could not endure a competitor ; if any of the dogs came too near him when he was eating, he gave him a box on the ear, which compelled him immediately to retire to a respectful distance.

“ Serpents excepted, there were no animals of whom Kees stood in such great dread, as of his own species,—perhaps owing to a consciousness, that he had lost a portion of his natural capacities. Sometimes he heard the cry of other apes among the mountains, and, terrified as he was, he yet answered them. But, if they approached nearer, and he saw any of them, he fled, with a hideous cry, crept between our legs, and trembled over his whole body. It was very difficult to compose him, and it required some time before he recovered from his fright.

“ Like all other domestic animals, Kees was addicted to stealing. He understood admirably well how to loose the strings of a basket, in order to take victuals out of it, especially milk, of which he was very fond. My people chastised him for these thefts ; but that did not make him amend his conduct. I myself sometimes whipped him ; but then he ran away, and did not return again to the tent, until it grew dark. Once, as I was about to dine, and had put the beans, which I had boiled for myself, upon a plate, I heard the voice of a bird, with which I was not acquainted. I left my dinner standing, seized my gun, and ran out of the tent. After the space of about a quarter of an hour, I returned, with the bird in my hand ; but, to my astonishment, found not a single bean upon the plate. Kees had stolen them all, and taken himself out of the way. When he had committed any trespass of this kind, he used always, about the time when I drank tea, to return quietly, and seat himself in his usual place, with every appearance of innocence, as if nothing had happened ; but this evening he did not let himself be seen. And, on the following day, also, he was not seen by any of us ; and, in consequence, I began to grow seriously uneasy about him, and apprehensive that he might be lost for ever. But, on the third day, one of my people, who had been to fetch water, informed me that he had seen Kees in the neighbourhood ; but that, as soon as the animal espied him, he had concealed himself again. I immediately went out and beat the

whole neighbourhood with my dogs. All at once, I heard a cry, like that which Kees used to make, when I returned from my shooting, and had not taken him with me. I looked about, and at length espied him, endeavouring to hide himself behind the large branches of a tree. I now called to him in a friendly tone of voice, and made motions to him to come down to me. But he could not trust me, and I was obliged to climb up the tree to fetch him. He did not attempt to fly, and we returned together to my quarters; here he expected to receive his punishment; but I did nothing, as it would have been of no use.

“When exhausted with the heat of the sun, and the fatigues of the day, with my throat and mouth covered with dust and perspiration, I was ready to sink gasping to the ground, in tracts destitute of shade, and longed even for the dirtiest ditch water; but, after seeking long in vain, lost all hopes of finding any in the parched soil. In such distressing moments, my faithful Kees never moved from my side. We sometimes got out of our carriage, and then his sure instinct led him to a plant. Frequently the stalk was fallen off, and then all his endeavours to pull it out were in vain. In such cases, he began to scratch in the earth with his paws; but as that would also have proved ineffectual, I came to his assistance with my dagger, or my knife, and we honestly divided the refreshing root with each other.

“An officer, wishing one day to put the fidelity of my baboon, Kees, to the test, pretended to strike me. At this Kees flew in a violent rage, and, from that time, he could never endure the sight of the officer. If he only saw him at a distance, he began to cry, and make all kinds of grimaces, which evidently showed that he wished to revenge the insult that had been done to me; he ground his teeth; and endeavoured, with all his might, to fly at his face, but that was out of his power, as he was chained down. The offender several times endeavoured, in vain, to conciliate him, by offering him dainties, but he remained long implacable.

“When any eatables had been pilfered, at my quarters, the fault was always laid first upon Kees; and rarely was the accusation unfounded. For a time, the eggs, which a hen laid me, were constantly stolen away, and I wished to ascertain whether I had to attribute this loss also to him. For this purpose, I went one morning to watch him, and waited till the hen announced,

by her cackling, that she had laid an egg. Kees was sitting upon my vehicle ; but, the moment he heard the hen's voice, he leapt down, and was running to fetch the egg. When he saw me, he suddenly stopped, and affected a careless posture, swaying himself backwards upon his hind legs, and assuming a very innocent look ; in short, he employed all his art to deceive me with respect to his design. His hypocritical manœuvres only confirmed my suspicions, and, in order, in my turn, to deceive him, I pretended not to attend to him, and turned my back to the bush where the hen was cackling, upon which he immediately sprang to the place. I ran after him, and came up to him at the moment when he had broken the egg, and was swallowing it. Having caught the thief in the fact, I gave him a good beating upon the spot ; but this severe chastisement did not prevent his soon stealing fresh-laid eggs again. As I was convinced that I should never be able to break Kees off his natural vices, and that, unless I chained him up every morning, I should never get an egg, I endeavoured to accomplish my purpose in another manner : I trained one of my dogs, as soon as the hen cackled, to run to the nest, and bring me the egg, without breaking it. In a few days, the dog had learned his lesson ; but Kees, as soon as he heard the hen cackle, ran with him to the nest. A contest now took place between them, who should have the egg : often the dog was foiled, although he was the stronger of the two. If he gained the victory, he ran joyfully to me with the egg, and put it into my hand. Kees, nevertheless, followed him, and did not cease to grumble and make threatening grimaces at him, till he saw me take the egg,—as if he was comforted for the loss of his booty by his adversary's not retaining it for himself. If Kees had got hold of the egg, he endeavoured to run with it to a tree, where, having devoured it, he threw down the shells upon his adversary, as if to make game of him. In that case, the dog returned, looking ashamed, from which I could conjecture the unlucky adventure he had met with.

“ Kees was always the first awake in the morning, and, when it was the proper time, he awoke the dogs, who were accustomed to his voice, and, in general, obeyed, without hesitation, the slightest motions by which he communicated his orders to them, immediately taking their posts about the tent and carriage, as he directed them.”

THE MONKEY PROPER.

THE varieties of the monkey kind are much more numerous than those of the Ape or Baboon. We shall lay before our readers a brief description of a few of the more remarkable of these. Most of the anecdotes, of which we are in possession, relate to monkeys whose species have not been ascertained.

The ENTELLUS MONKEY.—It is only of late that this species of monkey has been brought before the notice of naturalists, which is somewhat remarkable, as it is very common in Bengal. The proportion of its limbs, and its intellectual faculties, are peculiar; the former are particularly long, and remarkably slender; its motions are tardy; and it has an apathetic expression of countenance, which no circumstances can alter. It possesses characters nearly allied to those of the gibbon; but the extreme length of its tail removes it from that genus. This animal was named by its first describer, M. Dufresne, of the Jardin des Plantes, Paris, from a fancied resemblance to an old man. It is deserving our observation, as it possesses characters very dissimilar from all other species, and forms the type of a new genus. It is not merely distinct, from the colouring of its parts, or the dimensions of its organs, but also essentially different in its physiognomy. The entellus inhabits the Peninsula of Hindostan, and the immense group of islands of the Indian Archipelago. It is held in high veneration by the superstitious Hindoos; and whatever ravages they commit, the natives dare not destroy them, but only endeavour to scare them by their cries. The animals thus emboldened, from meeting with no opposition, assemble in vast troops, and possess themselves of the produce of whatever fields they fix upon.

The COCHIN-CHINA MONKEY is a large species, measuring upwards of two feet, from the nose to the tail. The face is flattish, and of a yellowish bay colour, as are also the ears; across the forehead there is a narrow band. This curious mon-

key is a native of Cochin-China and Madagascar. It is said, that a bezoar is more frequently found in its stomach than in that of almost any other species. This monkey is nearly the size of the Barbary ape, and measures, standing in an upright posture, from three and a half to four feet.

When I was at Paris, I frequently visited the superb menageries at the 'Jardin des Plantes.' Among the numerous monkeys was a fine male specimen of the Douc or Cochin-China monkey. In a cage on the opposite side of the room, was a female of a different species. One day, while accompanying a friend thither, I unthinkingly laid my hand on the cross bar of the cage of the latter, when she flew at my hand with great fury, and, but for my glove, I should have been severely scratched. I struck at her with a small stick, which the douc no sooner observed, than he set up the most shrill and loud scream I ever heard; leaped against the wires of his cage, and seemed most anxious to get out, to punish me for the insult I had offered his friend. He descended to the bottom of his cage, grinding his teeth, and, by every possible gesture, indicating the greatest rage; nor did he desist while I remained in the room. I did not visit this apartment again for three days, when, the moment I entered, the douc uttered a loud scream, put himself in the attitude of boxing, leaped about in a most fantastic manner, seizing his thighs with his hands; and, at other times, placing his hands on his side, and continued his fit of rage as long as I was present, and never failed to manifest the same fury whenever he saw me. I took apples, nuts, &c. to him, to endeavour to make friendship; but it was a futile attempt, for he would never afterwards be reconciled to me.

THE PROBOSCIS MONKEY.—There is, perhaps, not a more remarkable animal than the proboscis monkey among the whole of this numerous tribe. Its aspect is singular, the nose being of such a length and form as to present, especially when viewed in profile, an appearance the most grotesque imaginable; indeed, from the figure alone, one would be inclined to think it was intended by nature as a caricature of a monkey. The form of the nose itself is most singular, being divided almost into two lobes at the tip, a longitudinal furrow running along the middle. The proboscis monkey is two feet long from the nose to the tail, and stands upwards of three feet and a half in height; the tail is

more than two feet long, tapering, and snowy white ; the face has a kind of curved form, and is of a brown colour, marked with blue and red ; the ears are broad, thin, naked, and hid within the hair ; the head is large in proportion to the size of the body, and covered with chestnut coloured hair ; the whole body is also of a similar colour, approaching nearly to orange on the breast. Round the throat and shoulders the hair is much longer than on the other parts, so as to form a sort of tippet, as in some of the baboons, to which, indeed, this species seems nearly allied. It is an inhabitant of India, and very rarely to be met with ; its principal habitation being Cochin-China, where it is sometimes seen in large troops. This species is considered of a ferocious disposition, and is said to feed on fruits alone. Its native name is *kho doc*, or great monkey.

The COAITA.—This animal is one of the most active and lively of its tribe ; and, in a state of captivity, is of a tractable and gentle disposition. The face is flesh coloured, and its whole body of a uniform black ; it has no thumbs on its hands ; but, instead of these, there are very small projections or appendices. It inhabits the woods of South America ; associating in immense troops ; assailing such travellers as pass through their haunts, with an infinite number of sportive and mischievous gambols ; chattering, and throwing down dry sticks ; hanging by the tails from the boughs, endeavouring to intimidate the passengers by a variety of menacing gestures. In their mischievous pranks, these animals seem to act without anger, and they only use annoyance to drive off the intruder. The prehensile tail of the coaita is a singular provision of nature : it is upwards of two feet in length, nearly a foot longer than the body of the animal. It is almost as useful as an additional hand, and he employs it for the purpose of feeling and grasping objects, and of fetching things to him, which are too remote to be reached by the hand ; and of suspending himself from the branches of trees. The prehensile part of the tail is naked, and has a second covering of a very delicate and sensitive skin, which is so susceptible of touch, that it appears to possess it even in a higher degree than the hands.

The GUARIBA ; or, PREACHER MONKEY.—The preacher monkey is about the size of a fox, and of a black colour, with smooth glossy hair : it has a round beard beneath the chin ; the

feet and point of the tail brown. It is a native of Guiana, where it inhabits the woods in immense numbers. The whole troop often set up the loudest and most doleful howling. We are informed by Marcgrave that one of them will sometimes mount up to the top branch of a tree, and, by a peculiar call, assemble a multitude of his species below; he then gives the signal, when the congregation set up the most horrible yell imaginable, which falls on the ear of the distant traveller like the war-whoop of an Indian tribe. After a certain space, he gives a signal with his hand, when the whole assembly join in a sort of singing chorus; but, on another signal, a sudden silence prevails, when the leader seems to finish his harangue, and descends the tree. The faculty this animal possesses of howling is owing to the conformation of the os hyoides, or throat bone, which is dilated into a bottle-shaped cavity. It would be difficult to account for the impulse which directs the preacher to exercise this singular faculty in unison: those who have witnessed the circumstance saw no apparent cause for it.

The SQUIRREL MONKEY.—This species is a beautiful little animal, not much bigger than a squirrel; its colour is of a bright gold yellow, with orange coloured hands and feet; the head is round; the nose blackish; the orbits of the eyes of a flesh colour; the ears are hairy and ill formed; the under parts are whitish; and the tail very long, with a black tip. It is an inhabitant of Cayenne, Brazil, and other parts of South America.

The DOUROCOULI.—This animal is one of the most singular of all the four-handed tribe. The hair of its body is gray, mixed with white, and exhibits a silvery lustre in the sun; and it has a brown line passing down the back. The breast, abdomen, and inner sides of the limbs are of a yellowish orange colour, inclining to brown. The forehead has three diverging lines of black; the face is covered with blackish hairs, and bears a considerable resemblance to that of the tiger cat. The eyes are of a bright yellow, and of great magnitude, compared with the size of the animal. The mouth is surrounded with short, white, bristly hairs. The palms of the hands are white. The tail is very handsome and bushy, and about half as long again as the body, same colour as the back, with a black point. There is no appearance of external ears, but, on separating the hairs, two large cavities are found, which are the organs of hearing. The

length of the body, exclusive of the tail, is nine inches and a half.

The FOX-TAILED MONKEY is an animal of a remarkable appearance, and above the size of the domestic cat. Its colour is of a dusky brown, with a slight rusty tinge through it, except on the head and face; from the top of the nose to the chin it is black, being of a pyramidal form, and naked; the face is surrounded by white downy hair, which rises on each side of the forehead like a wig, thin towards the top, but extremely large and bushy at the cheeks and below them, but does not meet beneath the chin, leaving a bare space, as if it were shaven, and giving a singular aspect to the face. The eyes are large, and the ears are round and flat; the hands and feet are furnished with sharpish claws; the tail is equal to the body in length, and even thicker and more brushy than that of a fox. The tusks of this species are remarkably large for the size of the animal. It inhabits French Guiana. This is the *Garqué* of Buffon: he figures another variety of the same animal, which he calls *Singe de Nuit*, more shaggy and tufted in its fur.

The STRIATED MONKEY is one of the smallest of the monkey tribe, its head and body being hardly twelve inches in length; the body and tail are beautifully marked with alternate transverse bars of ash colour and black. This interesting little animal is a native of Brazil, and feeds on fruits, vegetables, insects, and snails, and is said to be fond of fish. We have an amusing account of the united care and attention paid by two striated monkeys to their offspring, born in the menagerie of the 'Jardin des Plantes' at Paris. On the 27th April, 1819, the female brought three young ones, a male and two females. They instantly attached themselves to their mother, embracing her closely, and hiding themselves in her fur. However, previously to their sucking, she cruelly deprived one of them of life, and cut its head off. The two others took the breast, and from that moment the mother bestowed on them the natural attention of a parent, and her cares were shared by the father. When the female was fatigued by carrying the young ones, she would approach the male, and send forth a little plaintive cry, and immediately the latter would take them with his hands, and place them under him, or on his back, where they held fast, and thus he would carry them about until they showed uneasiness for

want of suck, when he returned them to the female, who, after satisfying their wants, got rid of them again as soon as possible. The principal burden of the care of the young devolved upon the male. The mother did not evince for them that degree of tenderness and affection, so usual in the females of most species.

The FAIR MONKEY is one of the most beautiful of the tribe. Its head is small and round : its face and hands are of the most vivid scarlet, so much so, that it has more the appearance of art than nature. Its body and limbs are covered with long hairs of the purest white, of a shining and silvery brightness ; the tail is long, of a deep chestnut colour, very glistening, and considerably longer than the body. This animal is somewhat larger than the striated monkey. It is an inhabitant of South America, and is frequently to be met with on the banks of the Amazon. The following circumstance, exhibiting the fickleness of the fair monkey, was communicated to Mr Bewick by the present Sir John Trevelyan of Wallington and Nettlecome, in June, 1809. " Pug was a gentleman of excellent humour, and adored by the crew ; and, to make him perfectly happy, as they imagined, they procured him a wife. For some weeks, he was a devoted husband, and showed her every attention and respect. He then grew cool, and became jealous of any kind of civility shown her by the master of the vessel, and began to use her with much cruelty. His treatment made her wretched and dull ; and she bore the spleen of her husband with that fortitude which is characteristic of the female sex of the human species. And pug, like the lords of the creation, was up to deceit, and practised pretended kindness to his spouse, to effect a diabolical scheme, which he seemed to premeditate. One morning, when the sea ran very high, he seduced her aloft, and drew her attention to an object at some distance from the yard-arm ; her attention being fixed, he all of a sudden applied his paw to her rear, and canted her into the sea, where she fell a victim to his cruelty. This seemed to afford him high gratification, for he descended in great spirits."

RED TAILED MONKEY.—This is another beautiful species. Its size is about that of a large squirrel. The upper parts of the body are of a pale reddish brown, and the under parts and limbs are white. The face is black ; the hair on the head white,

long, loose, and spreading over the shoulders like a mantle; the lower parts of the back, and upper half of the tail, are of a deep orange red; the remainder of the tail black; the claws small and sharp. It is an active and lively animal; its voice is a kind of soft whistle, not unlike the note of a bird. Edwards says, that, when gamboling about a room, it often assumes the appearance of a lion in miniature, from the manner in which it carries its tail over its back. It is a native of Guiana.

The subject of monkeys has been so entirely exhausted by Goldsmith, that it is unnecessary to dwell longer upon it in this place. We shall therefore conclude with a few stray anecdotes of monkeys whose species are unknown.

A king of Egypt was so successful in training monkeys to the art of dancing, that they were long admired for the dexterity and gracefulness of their movements. On one occasion his majesty had a ball, at which a vast number of these animals, "tripped it on the light fantastic toe." A citizen, who enjoyed fun, threw a few handfuls of walnuts into the ball-room, while these picturesque animals were engaged in a high dance, upon which they forgot all decorum, and sprung to the booty.

Forbes mentions, in his 'Oriental Memoirs,' that, while on a shooting party, one of his friends killed a female monkey, and carried her to his tent, which was soon surrounded by forty or fifty of the tribe, who made a great noise, and seemed disposed to attack the aggressor. When, however, he presented his fowling piece, they retreated, being fully sensible of its dreadful effects, which experience had taught them. The head of the troop was not to be intimidated, and stood his ground, chattering furiously. Humanity prompted the sportsman to desist from firing on him, and nothing short of firing would frighten him. Finding threats of no avail, he at length approached the door of the tent, set up a lamentable moaning, and, by the most expressive gesture, began to beg for the dead body. It was given him; he took it sorrowfully in his arms, and bore it away to his expecting companions. Those who witnessed this extraordinary and affecting scene, resolved never again to fire at one of the monkey race.

Animals of the monkey kind, of which we have no specific account, abound in the plains and forests of the Ukraine. These animals form separate parties, or classes, and, at certain times,

meet in hostile bands, and engage in pitched battles. The opposing army have their chiefs, and officers of several subordinate ranks. The various combatants appear to obey orders, and proceed with the same regularity that men do on the like occasions. Cardinal Polignac, who was sent ambassador by Louis the Fourteenth, in order to support the interests of the Prince of Condé, against Stanislaus, had often an opportunity of witnessing these creatures engage. He tells us, that they gave the word of command for the onset, by a sort of shriek, when they advanced in regular companies, each headed by its particular chief, and on meeting, these chiefs engaged in combat with the most desperate fury.

A monkey, which was kept on board a frigate, was the favourite of all on board, but the midshipmen. This animal knew well of a large store of apples being in a locker in the ward-room, which was kept constantly secure, in consequence of his propensity for plundering it. He, however, fell upon ways and means to secure his booty. He procured a piece of wadding, swung himself from the stern gallery by one hand, and, with this in the other, broke a pane of glass in the wardroom window; and, after carefully picking out all the broken pieces of glass, made his *entrée*, where he gorged himself so fully, that he was unable to effect his retreat by the place where he entered. He was caught in the fact, and soundly flogged.

A singular piece of ingenuity was practised by a monkey, in defending himself against fire-arms. This animal belonged to Captain M——, of the navy, who had also another small monkey, of which he was very fond, from its lively playfulness. The large monkey was often exceedingly troublesome, and could not be driven from his cabin, without *blazing at* him with a pistol loaded with powder and currant jelly,—a discharge which produced a painful and very fearful effect. The old monkey was at first astounded at the sight of the weapon, which stung him so sore, that he at last learned a mode of defence; and snatching up the little favourite monkey, used to interpose him as a shield between the pistol and his body.

It was probably the mona, or varied monkey, of which an amusing, though tragical, account is given by Le Vaillant. In one of his excursions, he killed a female monkey, which carried a young one on her back. The young one continued to cling to

her dead parent, till they reached their evening quarters ; and the assistance of a negro was even then required to disengage it. No sooner, however, did it feel itself alone, than it darted towards a wooden block, on which was placed the wig of Le Vaillant's father. To this it clung most pertinaciously by its fore paws ; and such was the force of this deceptive instinct, that it remained in the same position for about three weeks, all this time evidently mistaking the wig for its mother. It was fed, from time to time, with goat's milk ; and, at length, emancipated itself voluntarily, by quitting the fostering care of the peruke. The confidence which it ere long assumed, and the amusing familiarity of its manners, soon rendered it a favourite with the family. The unsuspecting naturalist had, however, introduced a wolf in sheep's clothing into his dwelling : for, one morning, on entering his chamber, the door of which had been imprudently left open, he beheld his young favourite making a hearty breakfast on a very noble collection of insects. In the first transports of his anger, he resolved to strangle the monkey in his arms : but his rage immediately gave way to pity, when he perceived that the crime of its voracity had carried the punishment along with it. In eating the beetles, it had swallowed several of the pins on which they were transfixed. Its agony, consequently, became great : and all his efforts were unable to preserve his life.

OF POUCHED ANIMALS.

GOLDSMITH has arranged the opossum and its kind after monkeys, as they "seem to unite the monkey and the rat," and "fill up the chasm between the monkey tribe and the lower orders of the forest." The opossum, kangaroo, &c. are chiefly characterized by the possession of an abdominal pouch or double womb, in which they rear their young. The opossum is peculiar to South America, and the kangaroo to New Holland and some of the islands of the Indian Archipelago. The opossum is by no means eminent for intelligence, and indeed the whole tribe are deficient in that respect.

The GREAT KANGAROO measures about nine feet, and weighs about 150 lbs. The head is like that of a deer: the neck is thin and finely proportioned; the fore legs are about nineteen inches in length, and the hinder ones three feet and a half; the latter are bare, and callous, granulated beneath, and very strong; and, when sitting erect, the animals rest on the whole of their length; the lower point of the rear being elevated several inches from the ground. The hind feet are not unlike those of birds. From the breast downwards, the body gradually enlarges, till it reaches the lower part of the abdomen, where it is thickest, and again decreases towards the tail. This member is very strong, and is used by the animal in assisting it to bound, and as a weapon of defence,—the animal sometimes striking a man's leg with such force, as to break it.

Although the general position of the kangaroo, when at rest, is a sitting posture, supported on the hind legs, which lie flat on the ground from the hock joint, yet it frequently places its fore feet on the ground also, and thus feeds in the manner of other quadrupeds. It drinks by lapping.

The kangaroo is naturally a timid animal and flies at the ap-

proach of man. In New Holland this creature is hunted with greyhounds, and affords an agreeable pastime to the settlers. It does not run like other quadrupeds, but progresses by quick, repeated bounds of more than twenty feet, and no obstacle of nine or ten feet can obstruct its flight, for it will leap over any object of that height with the greatest ease. It is hunted silently, for it has surprising quickness of hearing. When a dog finds his game, the chase begins, the kangaroo hopping, and the dog running at his full speed ; so that in a thickly wooded country like New Holland they are quickly out of view. The following account of kangaroo hunting is taken from Dawson's ' Present State of Australia : '—

“The country on our right consisted of high and poor stony hills, thickly timbered ; that on the left, on the opposite side of the river, was a rich and thinly timbered country. A low and fertile flat meadow there skirted the river, and at the extremity of the flat the hills gradually arose with a gentle slope, covered with verdure, upon which an immense herd of kangaroos were feeding. I crossed over with Maty Bill and a brace of dogs, leaving the party to proceed on their route. The moment we had crossed, the kangaroos moved off. It is extremely curious to see the manner in which a large herd of these animals jump before you. It has often been asserted in England that they make use of their tails to spring from you when they are pursued ; this is not correct. Their tails never touch the ground when they move, except when they are on their feed, or at play ; and the faster they run or jump, the higher they carry them. The male kangaroos were called, by the natives, old men, ‘ wool man ; ’ and the females, young ladies, ‘ young liddy.’ The males are not so swift as the females ; and the natives, in wet seasons, occasionally run the former down when very large, their weight causing them to sink in the wet ground, and thus to become tired. They frequently, however, make up for this disadvantage, by fierceness and cunning, when attacked either by men or dogs ; and it is exceedingly difficult for a brace of the best dogs to kill a ‘ corbon wool man.’ When they can, they will hug a dog or a man as a bear would do ; and as they are armed with long sharp claws, they not unfrequently let a dog’s entrails out, or otherwise lacerate him in the most dreadful manner, sitting all the while on their haunches, hugging and scratching with determined fury.

Young dogs, that are fierce and of good bottom, are always sure to be sacrificed, if allowed to run at these 'old men,' before they have acquired some experience with smaller ones. After having been once or twice wounded, they get pretty cunning, and very few dogs will attack a 'wool man,' when they are away from their keepers : their practice is to keep the enemy at bay, by running round, and barking at him, till some person come up, when, either with large sticks or pistols, and the aid of the dogs, he is finally despatched, but not without some difficulty and caution. A full-sized 'wool man' at bay always sits on his haunches, and when he rises to move forward, he stands four, or four and a half feet high. In this manner, he will, when pressed, meet a man, and hug and scratch him, if not to death, in such a way that he does not soon forget it. When hard pressed, and near to water, the kangaroo always takes it ; if it be deep water, and the dogs follow him, one or the other is almost sure to be drowned. If a single dog, the kangaroo is nearly certain to come off victorious, by taking his assailant in his fore arms, and holding him under water till he is dead ; but, if he has two dogs opposed to him, he is not left at liberty to hold either of his opponents long enough under water to drown him, and he generally himself falls a sacrifice, after a long and hard struggle. Notwithstanding the courage and ferocity of the kangaroo, when pressed, he is otherwise extremely timid, and more easily domesticated than any wild animal with which I am acquainted. The smaller ones are frequently quite as swift as a hare ; and I have sometimes seen them outstrip the fleetest dogs. The kind of dog used for coursing the kangaroo is generally a cross between the greyhound and the mastiff, or sheep-dog ; but in a climate like New South Wales, they have, to use the common phrase, too much lumber about them. The true-bred greyhound is the most useful dog ; he has more wind ; he ascends the hills with more ease, and runs double the number of courses in a day. He has more bottom in running, and, if he has less ferocity when he comes up with an 'old man,' so much the better, as he exposes himself the less, and lives to afford sport another day. The strongest and most courageous dog can seldom conquer a 'wool man' alone, and not one in fifty will face him fairly : the dog who has the temerity, is certain to be disabled, if not killed.

“The herd of kangaroos we had thus come upon was too numerous to allow of the dogs being let loose; but, as the day’s walk was drawing to a close, I had given Maty Bill liberty to catch another kangaroo, if we should fall in with a single one. After moving up to the foot of the hill, about a quarter of a mile from the river, my sable companion eyed a ‘corbon wool man,’ as he called it, quietly feeding at a distance, on the slope of the hill. His eyes sparkled; he was all agitation; and he called out ‘Massa! massa! You tee! you tee! wool man! wool man! corbon wool man!’ and off he ran with his dogs, till he was within a fair distance, when he slipped their collars. I was at this time on foot, and the whole of them, therefore, were soon out of my sight. They had turned round the bottom of the hill, in the direction of the river, and, as I was following them down, I heard the dogs at bay, and the shrill call of ‘coo-oo-oo,’ from my companion, to direct me to the spot; and, on turning the corner of the hill, I met him, running, and calling as fast and as loud as he could. As soon as he saw me, he stopped and called out,—‘Massa! massa; make haste; dingo (dogs) have got him in ribber. Many corbon wool man, all the same like it bullock.’ All this was said in a breath; and as I could not pretend to run with him, I desired him to go as fast as he could, and help the dogs, till I should arrive. When I got up to the spot, he was in the middle of the river, with about two feet depth of water, while the kangaroo, sitting upright on its haunches, was keeping both him and the dogs at a respectful distance, and had laid bare the windpipe of one of the dogs. Billy’s Waddy was too short to reach him without coming to close quarters, and he knew better than do that; at length he got behind him, and, with a blow on the head, he despatched him. No huntsman could have shown more ardour in the pursuit, or more pleasure at the death of a fox, than did poor Maty Bill upon this occasion. The kangaroo was so heavy, weighing about a hundred and fifty pounds, that he could not lift him out of the water, and we were obliged to leave him till our party arrived on the opposite side. A fresh scene of pleasure ensued among the natives when they became acquainted with our good fortune. They were now all in the river, from whence they drew the ‘wool man,’ and placed him on the back of one of the horses. I wished to have left him, as we had already enough; but, as they were

eager beyond every thing to take him, I indulged them. It appears that the natives have a great partiality for the flesh of the old and large kangaroos, just as we have for mutton or venison of a proper age. I never could discover any difference in flavour ; but, if they can partake of a ' wool man,' they refuse any other ; and, when asked the reason, they replied to me, ' Wool man budgereee (food) fatter. Black fellow like him always more better."

The female kangaroo produces but one at a birth, which is excessively small. The young one remains in the abdominal pouch till it has grown to a considerable size. It frequently leaves this comfortable retreat for exercise or amusement ; and after the usual time of abandoning it altogether, on being alarmed, it will often return to it for safety.

Kangaroos exist entirely on vegetables,—chiefly on grass. They are gregarious, and may be seen feeding in herds of from thirty to fifty.

The kangaroo was introduced to the notice of naturalists by the memorable voyage of discovery to the Pacific Ocean, when Cook first circumnavigated the globe, in 1770. It was discovered by some of his people, in New South Wales,—a country replete with new and highly curious objects of natural history ; many of them with forms entirely new, and characters differing from every other part of the world. Till this period, these wonderful productions were only surveyed by the eyes of savages.

OF THE ELEPHANT.

THE elephant is the largest quadruped at present extant on the earth. In the world's early prime, however, it cannot be doubted, that there existed animals far surpassing the elephant in size. Fossil bones of "huge mammoths" have been found, of almost incredible dimensions, before which the bulk of the elephant dwindles into comparative insignificance. The habits, dispositions, and resources of these enormous quadrupeds are buried in everlasting oblivion; they existed, it is probable, before the world's continents were trodden by the foot of man, and while yet the earth bloomed in its young exuberance. But small as the elephant may be in comparison with these antediluvian monsters, it is still an animal of extraordinary size, and its magnitude seldom fails to excite surprise in the beholder, however much he may have been previously prepared for the sight. Its average height is nine or ten feet, though it in many cases rises as high as fifteen feet. Its weight varies from four to nine thousand pounds. Nor is it more distinguished for its size than for its sagacity. When tamed, it becomes the most gentle, obedient, and affectionate of domestic animals, capable of being trained to any service necessary in those warm countries to which it natively belongs. It has, therefore, in all ages been highly prized by mankind, and is well entitled to the character bestowed on it by the poet, as being

"The wisest brute, with gentle might endowed,
Though powerful, not destructive."

Only two species of the elephant at present exist, the ASIATIC and AFRICAN—but the remains of several extinct species are met with in almost every part of the world, particularly in Asiatic Russia. The Asiatic is the largest, most readily do-

mesticated, and best known. The African is distinguished from the Asiatic by a difference in the character of the teeth and shape of the head, and particularly by possessing enormous ears.

Elephants hold undisputed sway in the mighty forests which they inhabit; their immense size, united strength, and great swiftness, enabling them to dislodge all intruders on their abodes. The lion and tiger fear their united attacks, and avoid such formidable assailants. Seemingly sensible of the large supply of food they require, they will allow no animal, however peaceable, to browse in their territories, of which they hold exclusive possession: and they can only exist in those extensive woody ranges, or immense plains, where vegetation abounds in all its wild luxuriance.

From the conformation of the legs of the elephant, he has evidently been formed to move on level ground; as he wants the elastic ligament, which, in almost all quadrupeds, connects the top of the thigh bone with the pelvis, and that gives the hind legs power to resist the strain which is produced by moving on irregular surfaces.* Although the elephant is capable of ascending elevated tracts, with a considerable weight, yet his action plainly indicates, that it is by no means natural for him to do so. But to make up for this deficiency, he moves with the utmost caution, taking care always to have one foot secure, before he rests upon another.

The elephant is an excellent swimmer, and is capable of crossing the largest Asiatic rivers. This power seems very essential; for the great quantity of food which a herd must consume, necessarily obliges them to remove from one place to another. The elephant swims deep, being sometimes immersed to the head in the water, which does not at all incommode him, if he can reach the surface with the tip of his proboscis, so as to breath the atmospheric air. In a captive state, this sometimes proves rather dangerous to his mohout, or driver; and it not unfrequently happens, that he is obliged to stand erect on his back.

It will be noticed that the head of this quadruped is very differently placed from that of all other herbivorous animals. His neck is so short, that its vertebræ may rather be considered

* See the interesting observations on the anatomy of the Elephant, in Sir F. Home's 'Comparative Anatomy,' vol. i. p. 95.

as a column for its support than to enable him to put his head to the ground to graze. The movements of his head are confined to a very limited elevation and bending, as also a slight motion from side to side. This shortness and compactness of the vertebræ is necessary for the support of his ponderous head, and immense tusks. To supply the defect of a short neck, nature has furnished him with a proboscis or trunk ; which is an organ of the most exquisite sensibility, and fitted in an eminent degree for a number of useful purposes, and to supply all his necessities. This surprising organ has commanded the admiration of mankind in all ages of the world ; its flexibility and strength, and its extreme sensitiveness, excite our astonishment. The proboscis is a prolongation of the organ of smell, for there are two canals pierced through its centre, from one end to the other, and nearly separated by a fatty substance, about the third of an inch in thickness. These canals the animal has the power of dilating or contracting at pleasure ; and it is with these that he supplies himself with drink, by first filling them with the liquid, and then turning the point into his mouth and discharging the water into it. The water is drawn up by suction, to a certain point, beyond which it cannot pass. Some notion may be formed of the command the animal possesses over his trunk, when it is known, that Cuvier has ascertained, from anatomical dissection, that the muscles of this member, which have the power of distinct action, amount nearly to forty thousand. There is no animal organ at all to be compared to this for perfection, and possessing a mechanism so wonderful, and so completely adapted to its varied uses. The extreme termination of the trunk consists of a finger-like process, of an exceedingly flexible nature, and with which it can lift from the ground the smallest object, by being pressed against an opposite process ; between those two parts, which may be termed the finger and thumb, are situated the nostrils. The first and most essential property of the trunk is to supply the animal with food ; for with it he can despoil the trees of their young shoots and leaves, and crop the herbage of the fields ; he twists the point spirally round them, and crops them as nicely off as with a knife ; and then conveys them to his mouth. The elephant seems to be quite sensible of the value of his trunk, for he rarely uses it as an offensive weapon, and takes the greatest care of it upon all occa-

sions. It is said that he often makes use of his trunk in throwing clods, stones, and other missiles, at his adversaries.

The elephant possesses the sense of hearing in a high degree ; which has been given to him for some wise purpose. To ascertain the effect of music on elephants, Sir Everard Home tried experiments on one in London. He says, "As a matter of curiosity, I got Mr Braidwood to send me one of his tuners with a piano-forte to the menageries in Exeter Change, that I might know the effect of acute and grave sounds upon the ear of a full grown elephant. The acute sounds seemed hardly to attract his notice : but, as soon as the grave notes were struck, he became all attention, brought forward his large external ear, tried to discover where the sounds came from, remained in the attitude of listening, and, after some time, made noises, by no means of dissatisfaction." In the year 1798, an experiment was made upon the musical capabilities of the male and female elephants at the 'Jardin du Roi,' at Paris, from which it was quite evident, that the elephants were differently affected by various pieces of music : the tender air of 'Charmante Gabrielle' produced in them a languor of expression, while the lively national air of 'Ca-ira' effected a great degree of excitement. These are so far confirmatory of *Ælian's* account of the modulated dance of the elephants of Germanicus.

Elephants are possessed of three distinct methods of utterance, which their Asiatic keepers perfectly understand. The first sound, which denotes pleasure, is produced by blowing through the proboscis, in a sharp manner, like the notes of a trumpet blown by a novice. The second, to signify their wants, is expressed through the mouth in a low murmuring tone. The third, which is indicative of rage, is a tremendous roar proceeding from the throat.

Bathing is a favourite recreation with the elephant. This probably arises from the pleasure the animal feels from the cuticle being cooled and refreshed, as they have no hair to protect it from the sun's influence. Bishop Heber, in his approach to Dacca, saw a number of elephants enjoying themselves in this way, which he thus narrates :—"At a distance of about half a mile from those desolate palaces, a sound struck my ear, as if from the water itself on which we were riding, the most solemn and singular I can conceive. It was long, loud, deep, and trem-

ulous, something between the blowing of a whale, or perhaps more like those roaring buoys which are placed at the mouths of some English harbours, in which the winds make a noise to warn ships off them. ‘Oh,’ said Abdallah, ‘there are elephants bathing; Dacca much place for elephant.’ I looked immediately, and saw about twenty of these fine animals, with their heads and trunks just appearing above the water. Their bellowing it was which I had heard, and which the water conveyed to us with a finer effect than if we had been on shore.”

The following anecdote illustrates the passion of elephants for water, but still further illustrates the cunning and resources of these animals. “At the siege of Bhurtpore, in the year 1805, an affair occurred between two elephants, which displays at once the character and mental capacity, the passions, cunning, and resources of these curious animals: The British army, with its countless host of followers and attendants, and thousands of cattle, had been for a long time before the city, when, on the approach of the warm season and of the dry hot winds, the quantity of water in the neighbourhood of the camps, necessary for the supply of so many beings, began to fail; the ponds or tanks had dried up, and no more water was left than the immense wells of the country would furnish. The multitude of men and cattle that were unceasingly at the wells, particularly the largest, occasioned no little struggle for the priority in procuring the supply, for which each was there to seek, and the consequent confusion on the spot was frequently very considerable. On one occasion, two elephant drivers, each with his elephant, the one remarkably large and strong, and the other comparatively small and weak, were at the well together; the small elephant had been provided by his master with a bucket for the occasion, which he carried at the end of his proboscis; but the larger animal being destitute of this necessary vessel, either spontaneously, or by desire of his keeper, seized the bucket, and easily wrested it away from his less powerful fellow-servant. The latter was too sensible of his inferiority openly to resist the insult, though it is obvious that he felt it; but great squabbling and abuse ensued between the keepers. At length, the weaker animal, watching the opportunity when the other was standing with his side to the well, retired backwards a few paces, in a very quiet unsuspecting manner, and then rushing forward with all his might, drove his head against

the side of the other, and fairly pushed him into the well. It may easily be imagined that great inconvenience was immediately experienced, and serious apprehensions quickly followed, that the water in the well, on which the existence of so many seemed, in a great measure, to depend, would be spoiled, or at least injured by the unwieldy brute which was precipitated into it; and as the surface of the water was nearly twenty feet below the common level, there did not appear to be any means that could be adopted to get the animal out by main force, without the risk of injuring him. There were many feet of water below the elephant, who floated with ease on its surface, and experiencing considerable pleasure from his cool retreat, he evinced but little inclination even to exert what means he might possess in himself of escape. A vast number of fascines had been employed by the army in conducting the siege; and at length it occurred to the elephant keeper, that a sufficient number of these (which may be compared to bundles of wood) might be lowered into the well, to make a hill, which might be raised to the top, if the animal could be instructed as to the necessary means of laying them in regular succession under his feet. Permission having been obtained from the engineer officers to use the fascines, which were at the time put away in several piles of very considerable height, the keeper had to teach the elephant the lesson, which, by means of that extraordinary ascendancy these men attain over their charge, joined with the intellectual resources of the animal itself, he was soon enabled to do; and the elephant began quickly to place each fascine as it was lowered, successively under him, until, in a little time, he was enabled to stand upon them; by this time, however, the cunning brute, enjoying the pleasure of his situation, after the heat, and partial privation of water to which he had been lately exposed, (they are observed in their natural state to frequent rivers, and to swim very often,) was unwilling to work any longer; and all the threats of his keeper could not induce him to place another fascine. The man then opposed cunning to cunning, and began to caress and praise the elephant; and what he could not effect by threats, he was enabled to do by the repeated promise of plenty of rack. Incited by this, the animal again went to work, raised himself considerably higher, until, by a partial removal of the masonry round the

top of the well, he was enabled to step out. The whole affair occupied about fourteen hours."

It is computed that an elephant will perform the work of six horses ; but he requires more care from his keeper, and a much greater quantity of food, which, in India, usually consists of rice and water, either raw or boiled, with the addition of fresh vegetable substances. His daily allowance of rice is a hundred pounds, and he is supposed to drink about forty-five gallons of water. The elephant is easily overheated ; and it becomes necessary to allow him to bathe as frequently as circumstances will permit. Where the pool is not sufficiently deep to allow him to immerse himself entirely in the water, he sucks up a quantity in his trunk, and, elevating it over his head, spouts it all over his body.

The elephant is a long-lived animal, although the exact duration of his existence is not properly ascertained. It is, however, quite well known that they have lived one hundred and thirty years. Some authors have gone the length of estimating his life at four hundred years. The time of gestation in the elephant is twenty months and eighteen days ; they produce but one young at a time, which is, at birth, about thirty-five inches in height. They suck the teats of their mother with their mouth, and not with their trunk, as many authors have asserted.

Naturalists, since the middle ages, have denied that the elephant propagates in a state of captivity. *Ælian* and *Columella* both distinctly state that the elephant was in their time productive in a domesticated condition. The former of these authors flourished in the beginning of the second century. Mr *Corse*, keeper of the elephants to the East India Company, who has probably seen and watched the habits of these animals more than any other in Europe, distinctly asserts, that they bring forth under the dominion of man. In India it was thought unlucky to breed elephants ; but the origin of this belief may be traced to the great expense of rearing young elephants, and their being so long of reaching maturity. It was easier to procure them by hunting, and securing them in their native forests.

The manner of hunting and taming the wild elephant in Asia is curious. In the middle of a forest, where these animals are

known to abound, a large piece of ground is marked out, and surrounded with strong stakes driven into the earth, interwoven with branches of trees. One end of this enclosure is narrow, and it gradually widens till it takes in a great extent of country. Several thousand men are employed to surround the herd of elephants, and to prevent their escape; they kindle large fires at certain distances, and by hallooing, beating drums, and playing discordant instruments, so bewilder the poor animals, that they allow themselves to be insensibly driven, by some thousands more Indians, into the narrow part of the enclosure, into which they are decoyed by tame female elephants, trained to this service. At the extreme end of the large area is a small enclosure, very strongly fenced in, and guarded on all sides, into which the elephants pass by a long narrow defile. As soon as one enters this strait, a strong bar is thrown across the passage from behind. He now finds himself separated from his neighbours, and goaded on all sides by huntsmen, who are placed along this passage, till he reaches the smaller area, where two tame female elephants are stationed, who immediately commence to discipline him with their trunks, till he is reduced to obedience, and suffers himself to be conducted to a tree, to which he is bound by the leg, with stout thongs of untanned elk, or buckskin. The tame elephants are again conducted to the enclosure, where the same operation is performed on the others, till all are subdued. They are kept bound to trees for several days, and a certain number of attendants left with each animal to supply him with food, by little and little, till he is brought by degrees to be sensible of kindness and caresses, and thus allows himself to be conducted to the stable. So docile and susceptible of domestication is the elephant, that, in a general way, fourteen days are sufficient to reduce the animals to perfect obedience. During this time they are fed daily with cocoa-nut leaves, of which they are excessively fond, and are conducted to the water by the tame females. In a short time he becomes accustomed to the voice of his keeper, and at last quietly resigns his freedom, and great energies, to the dominion of man.

The mode employed by the Africans to take elephants alive is in pits. Pliny, whose accounts were in general correct, mentions, that, when one of the herd happened to fall into this snare, his companions would throw branches of trees and masses

of earth into the pit, with the intention of raising the bottom, so that the animal might effect his escape. Although this appears to be a species of reasoning hardly to be expected from an animal, yet it has in a great measure been confirmed by Mr Pringle, who says,—“ In the year 1821, during one of my excursions in the interior of the Cape Colony, I happened to spend a few days at the Moravian Missionary Settlement of Enon, or White River. This place is situated in a wild, but beautiful valley, near the foot of the Zuurberg mountains, in the district of Uiterhage, and is surrounded on every side by extensive forests of evergreens, in which numerous herds of elephants still find food and shelter. From having been frequently hunted by the boors and Hottentots, these animals are become so shy as scarcely ever to be seen during the day, except amongst the most remote and inaccessible ravines and jungles ; but in the night time they frequently issue forth in large troops, and range in search of food, through the inhabited farms in the White River valley ; and on such occasions they sometimes revenge the wrongs of their race upon the settlers who have taken possession of their ancient haunts, by pulling up fruit trees, treading down gardens and corn fields, breaking their ploughs, waggons, and so forth. I do not mean, however, to affirm, that the elephants really do all this mischief from feelings of revenge, or with the direct intention of annoying their human persecutors. They pull up the trees, probably because they want to browse on their soft roots, and they demolish the agricultural implements merely because they happen to be in their way. But what I am now about to state assuredly indicates no ordinary intelligence : A few days before my arrival at Enon, a troop of elephants came down one dark and rainy night, close to the outskirts of the village. The missionaries heard them bellowing, and making an extraordinary noise, for a long time at the upper end of the orchard ; but, knowing well how dangerous it is to encounter these powerful animals in the night, they kept close within their houses till day-light. Next morning, on their examining the spot where they had heard the elephants, they discovered the cause of all this nocturnal uproar. There was at this spot a ditch or trench, about four or five feet in width, and nearly fourteen feet in depth, which the industrious missionaries had recently cut through the banks of the river, on purpose to lead out water to

irrigate some part of their garden, and to drive a corn-mill. Into this trench, which was still unfinished, and without water, one of the elephants had evidently fallen, for the marks of his feet were distinctly visible at the bottom, as well as the impress of his huge body on the sides. How he had got into it was not easy to conjecture; but how, being once in, he ever contrived to get out again, was the marvel. By his own unaided efforts it was obviously impossible for such an animal to have extricated himself. Could his comrades, then, have assisted him? There can be no question that they had, though by what means, unless by hauling him out with their trunks, it would not be easy to conjecture. And, in corroboration of this supposition, on examining the spot myself, I found the edges of this trench deeply indented with numerous vestiges, as if the other elephants had stationed themselves on either side, some of them kneeling, and others on their feet, and had thus, by united efforts, and probably after many failures, hoisted their unlucky brother out of the pit."

"A herd of wild elephants," says Mr Pringle, "browsing in majestic tranquillity amidst the wild magnificence of an African landscape, is a very noble sight, and one of which I shall never forget the impression. It is difficult to convey in a brief notice an adequate idea of such a scene; but if the reader will, in imagination, accompany me in a short excursion into the wilderness, I shall endeavour to show him at least what the South Africans call the *spoor*—the *vestigia* of a troop of elephants. During my residence on the eastern frontiers of the Cape Colony, I accompanied a party of English officers on a little exploratory excursion, into a tract of country then termed the Neutral Territory, immediately adjoining to the location of the Scottish settlers at Bavian's River. This territory, which comprises an irregular area, of about two millions of acres, had remained for several years entirely without inhabitants; for its native possessors, the Caffres and Ghonaquas, had been expelled from it in 1819, by the colonial forces, and no other permanent inhabitants had yet been allowed to occupy it. The colonists were even forbidden to hunt in it under severe penalties, and in consequence of this, the wild animals had resorted thither in considerable numbers. The upper part of this extensive tract, into which we now penetrated, is an exceedingly wild

and bewildering region, broken into innumerable ravines, encumbered with rocks, precipices, and impenetrable woods and jungles, and surrounded on almost every side by lofty and sterile mountains. During our first day's journey, although we saw many herds of large game, such as quaggas, gnus, hartebeests, koodoos, with a variety of the smaller antelopes, there was no appearance of elephants; but, in the course of the second day, as we pursued our route down the valley of the Koonap river, we became aware that a numerous troop of these gigantic animals had recently preceded us. Footprints of all dimensions, from eighteen to fifteen inches in diameter, were every where visible; and in the swampy spots, on the banks of the river, it was evident that some of them had been luxuriously enjoying themselves, by rolling their unwieldy bulks in the ooze and mud. But it was in the groves and jungles that they had left the most striking proofs of their recent presence and peculiar habits. In many places, paths had been trodden through the midst of dense thorny forests, otherwise impenetrable. They appeared to have opened those paths with great judgment, always taking the best and shortest cut to the next open savannah, or ford of the river; and in this way they were of the greatest use to us, by pioneering our route through a most difficult and intricate country, never yet traversed by a wheel carriage: and great part of it, indeed, inaccessible even on horseback, except for the aid of these powerful and sagacious animals. In such places (as the Hottentots assured me,) the great tall elephants always march in the van, bursting through the jungle, as a bullock would through a field of hops, treading down the thorny brushwood, and breaking off with their proboscis the larger branches that obstruct their passage. The females and younger part of the herd follow in their track in single file; and, in this manner, a path is cleared through the densest woods and forests, such as it would take the pioneers of an army no small labour to accomplish. Among the groves of mimosa trees, which were thinly sprinkled over the grassy meadows along the river margins, the traces of the elephants were not less apparent. Immense numbers of trees had been torn out of the ground, and placed in an inverted position, in order to enable the animals to browse at their ease on the soft and juicy roots, which form a favourite part of their food. I observed that, in numerous instances,

when the trees were of considerable size, the elephant had employed one of his tusks exactly as we should use a crow-bar, thrusting it under the roots, to loosen their hold of the earth, before he could tear them up with his proboscis. Many of the larger mimosas had resisted all their efforts; and, indeed, it is only after heavy rains, when the soil is soft and loose, that they can successfully attempt this operation. While we were admiring these and other indications of the elephant's strength and sagacity, we suddenly found ourselves, on issuing from a woody defile, through one of the wild paths I had mentioned, in the midst of a numerous herd of these animals. None of them, however, were very close upon us; but they were seen scattered in little clumps, over the bottoms and sides of a valley two or three miles in length; some browsing on the succulent *speck boom* (*Postulacaria afra*,) which clothed the skirts of the hills on either side; others at work among the mimosa trees, sprinkled over the low and grassy savannah. As we proceeded cautiously onward, and some of these parties came more distinctly into view, (consisting, apparently, in many instances, of separate families, the male, the female, and the young, of different sizes,) the gigantic magnitude of the leaders became more and more striking. The calm and stately tranquillity of their deportment, too, was remarkable: though we were a band of about a dozen horsemen, including our Hottentot attendants, they seemed either not to observe, or altogether to disregard our march down the valley." A natural love of sport excited Mr Pringle's companions to attack these animals: but, says he, "When I looked around on these noble and stately animals feeding in quiet security in the depth of this secluded and picturesque valley, too peaceful to injure, too powerful to dread any other living creature, I felt that it would be almost a sort of sacrilege to attempt their destruction in sheer wantonness, merely to furnish sport to the great destroyer, man; and I was glad when it was unanimously agreed to leave them unmolested."

Of the attachment of elephants to their keepers, or to those who have done them a kindness, many instances are on record. We shall here lay a few before our readers:—Ælian relates, that a man of rank in India, having very carefully trained up a female elephant, used daily to ride upon her. She was exceedingly sagacious, and much attached to her master. The prince

having heard of the extraordinary gentleness and capacity of this animal, demanded her of her owner. But so attached was this person to his elephant, that he resolved to keep her at all hazards, and fled with her to the mountains. The prince, having heard of his retreat, ordered a party of soldiers to pursue, and bring back the fugitive with his elephant. They overtook him at the top of a steep hill, where he defended himself by throwing stones down upon his pursuers, in which he was assisted by his faithful elephant, who threw stones with great dexterity. At length, however, the soldiers gained the summit of the hill, and were about to seize the fugitive, when the elephant rushed amongst them with the utmost fury, trampled some to death, dashed others to the ground with her trunk, and put the rest to flight. She then placed her master, who was wounded in the contest, upon her back, and conveyed him to a place of security.

When Pyrrhus, King of Epirus, attacked the territory of Argos, one of his soldiers, who was mounted upon an elephant, received a dangerous wound, and fell to the ground. When the elephant discovered that he had lost his master in the tumult, he furiously rushed among the crowd, dispersing them in every direction, till he had found him. He then raised him from the ground with his trunk, and, placing him across his tusks, carried him back to the town.

A wooden house was, in 1818, constructed at St Petersburg for the elephants which the Schah of Persia had presented to the Emperor of Russia. The male elephant was twelve feet high; his tusks had been partly sawed off, and encircled in golden rings. This was the same elephant on which the sovereign of Persia used to ride, with a canopy over his head. Several Persians, who were accustomed to attend on these animals, continued to reside at St Petersburg. A singular incident took place on one occasion with the male elephant:—A lady, whom curiosity frequently attracted to see him, never paid him a visit without carrying along with her some bread, apples, and brandy. One day, the animal, as a testimony of his gratitude, seized her with his trunk, and placed her upon his back. The poor lady, who was not prepared for this act of gallantry, uttered piercing shrieks, and entreated the assistance of those who were standing near. The Persians, however, prudently advised her not to stir,

and she was obliged to wait till the elephant placed her on the ground as carefully as he had raised her.

Porus, a king of India, in a battle with Alexander the Great, being severely wounded, fell from the back of his elephant. The Macedonian soldiers, supposing him dead, pushed forward, in order to despoil him of his rich clothing and accoutrements ; but the faithful elephant, standing over the body of its master, boldly repelled every one who dared to approach ; and, while the enemy stood at bay, took the bleeding monarch up with his trunk, and placed him again on his back. The troops of Porus came by this time to his relief, and the king was saved ; but the faithful elephant died of the wounds which he received in the heroic defence of his master.

Some years ago, an elephant at Dekan, from a motive of revenge, killed its conductor. The wife of the unfortunate man was witness to the dreadful scene, and, in the frenzy of her mental agony, took her two children, and threw them at the feet of the elephant, saying, " As you have slain my husband, take my life also, as well as that of my children !" The elephant became calm, seemed to relent, and as if stung with remorse, took up the eldest boy with its trunk, placed him on its neck, adopted him for its cornac, and never afterwards allowed another to occupy that seat.

A female elephant, belonging to a gentleman in Calcutta, who was ordered from the upper country to Chittagong, in the route thither, broke loose from her keeper, and, making her way to the woods, was lost. The keeper made every excuse to vindicate himself, which the master of the animal would not listen to, but branded the man with carelessness, or something worse,—for it was instantly supposed he had sold the elephant. He was tried for it, and condemned to work on the roads for life, and his wife and children sold for slaves. About twelve years afterwards, this man, who was known to be well acquainted with breaking elephants, was sent into the country with a party to assist in catching wild ones. They came upon a herd, and this man fancied he saw amongst the group his long lost elephant, for which he had been condemned. He resolved to approach it, nor could the strongest remonstrances of the party dissuade him from the attempt. Having reached the animal, he spoke to her, when she immediately recognised his voice ; she waved her

trunk in the air as a token of salutation, and spontaneously knelt down, and allowed him to mount her neck. She afterwards assisted in taking other elephants, and decoyed three young ones, to which she had given birth in her absence. The keeper returned, and the singular circumstances attending the recovery being told, he regained his character; and, as a recompense for his unmerited sufferings, had a pension settled on him for life. This elephant was afterwards in possession of Warren Hastings, when governor-general of Hindostan.

A soldier in India was in the habit of giving to an elephant, whenever he received his pay, a certain quantity of arrack. Once, being intoxicated, this soldier committed some excesses, and was ordered to be committed to the guardhouse; but he fled from the soldiers who were sent to apprehend him, and took refuge under the body of his favourite elephant, where he laid himself down quietly, and fell asleep. In vain the guard attempted to seize upon him, and draw him from his place of refuge, for the grateful elephant defended him with his trunk, and they were obliged to abandon their attempt to secure him. When the soldier awoke next morning from his drunken slumber, he was very much alarmed at finding himself under the belly of such an enormous animal; but the elephant caressed him with his trunk, so as to quiet his apprehensions, and he got up and departed in safety.

There is a curious fact of the attachment of an elephant for an infant, mentioned in the 'Philosophical Transactions:' he is said never to have been happy but when the infant was near him. The nurse, therefore, frequently took the child in its cradle, and placed it between the feet of its attached friend. He became at length so accustomed to the presence of his guest, that he would not eat his meat when the infant was absent. When the child was asleep, he watched it with much solicitude, and, when flies approached, he drove them off with his trunk; if it awoke, and cried, he would rock the cradle till the child again fell asleep.

The author of the 'Twelve Years' Military Adventures,' says,—"I have myself seen the wife of a mohout give a baby in charge to an elephant, while she was on some business, and have been highly amused in observing the sagacity and care of the unwieldy nurse. The child, which, like most children, did

not like to lie still in one position, would, as soon as left to itself, begin crawling about, in which exercise it would probably get among the legs of the animal, or entangle itself in the branches of the trees on which he was feeding, when the elephant would, in the most tender manner, disengage his charge, either by lifting it out of the way with his trunk, or by removing the impediments to his free progress. If the child had crawled to such a distance as to verge upon the limits of his range, (for the animal was chained by the leg to a peg driven into the ground,) he would stretch out his trunk, and lift it back as gently as possible to the spot whence it had started."

That elephants are susceptible of the most tender attachment to each other, is evinced by the following occurrence, which is recorded in a French journal:—In the year 1786, two young elephants, about two years and a half old, were brought from the island of Ceylon into Holland, as a present to the stadtholder, from the Dutch East India Company. They had been separated, in order to be conveyed from the Hague to the *Jardin des Plantes*, at Paris, where there was a spacious apartment fitted up for their reception. This was divided in the middle to keep the animals apart, but communicated by means of a portcullis. These apartments were surrounded by a palisade of strong rails. The morning after their arrival they were brought into this habitation, the male elephant being first introduced. He examined, with an air of suspicion, the whole place, tried the beams individually, by shaking them with his trunk, to see if they were fast. He endeavoured to turn round the large screws which bound them, but this he found impracticable. When he came to the portcullis between the two partitions, he discovered it was secured only by a perpendicular iron bolt, which he lifted up with his trunk, pushed open the door, and entered the other apartment, where he received his breakfast. It was with great difficulty these animals had been separated; and, not having seen each other for some months, the joy they exhibited at meeting, after so long a separation, is hardly to be described. They immediately ran to each other, uttered a cry of joy that shook the whole building, and blew air from their trunks with such violence that it seemed like the blast of a smith's bellows. The pleasure of the female seemed the most lively: she expressed it by moving her ears with astonishing rapidity, and tenderly twining

her trunk round the body of the male. She particularly applied it to his ear, where she kept it for a long time motionless, and, after having again folded it round his body, she applied it to her own mouth. The male, in like manner, folded his trunk round the body of the female, and the pleasure he seemed to experience was of a sentimental cast, for he expressed it by shedding tears. After that time, they were kept in the same apartment, and their attachment and mutual affection excited the admiration of all who visited the menagerie.

The following is an example of the attachment of the elephant to other animals:—In the year 1740, the Emperor of Turkey sent the present of an elephant to the King of Naples, which formed a particular attachment to a ram, that was, together with some other animals, confined in the same stable with the elephant. They became extremely familiar; and the ram used to amuse himself, by butting with his horns against the elephant's legs, and sometimes his forehead. This the elephant bore with seeming good nature; but sometimes the ram abused this familiarity, by butting harder than was agreeable to his friend; and the only punishment which he inflicted upon him, was to take him up in his trunk, and throw him upon a dung heap at some little distance. If any other of the animals attempted to take liberties with him, he would dash them against the wall with such violence, that they were killed on the spot.

The elephant is not less disposed to resent an injury, than to reward a benefit. It has been frequently observed by those who have had the charge of elephants, that they seem sensible of being ridiculed, and seldom miss an opportunity of revenging themselves for the insults they receive in this way. An artist in Paris wished to draw the elephant in the menagerie at the *Jardin des Plantes* in an extraordinary attitude, which was with his trunk elevated in the air, and his mouth open. An attendant on the artist, to make the elephant preserve the attitude, threw fruits into his mouth, and often pretended to throw them, without doing so. The animal became irritated, and, seeming to think that the painter was the cause of his annoyance, turned to him, and dashed a quantity of water from his trunk over the paper on which the painter was sketching the portrait.

A merchant at Bencoolen kept a tame elephant, which was so exceedingly gentle in his habits, that he was permitted to go at

large. This huge animal used to walk about the streets, in the most quiet and orderly manner, and paid many visits through the city to people who were kind to him. Two cobblers took an ill will to this inoffensive creature, and attempted several times to prick him on the proboscis with their awls. The noble animal did not chastise them in the manner he might have done, and seemed to think they were too contemptible to be angry with them. But he took other means to punish them for their temerity: He filled his trunk with water of a dirty quality, and, advancing towards them in his ordinary manner, spouted the whole of the puddle over them. The punishment was applauded by those who witnessed it, and they were laughed at for their folly.

Woif, in his *Voyage to Ceylon*, relates the following anecdote:—A person in that island, who lived near a place where elephants were daily led to water, and often sat at the door of his house, used occasionally to give one of these animals some fig leaves, a food to which elephants are very partial. Once he took it into his head to play the elephant a trick: He wrapped a stone round with fig leaves, and said to the cornac, "This time I will give him a stone to eat, and see how it will agree with him." The cornac answered, "that the elephant would not be such a fool as to swallow a stone." The man, however, reached the stone to the elephant, who, taking it with his trunk, immediately let it fall to the ground. "You see," said the keeper, "that I was right;" and, without farther words, drove away his elephants. After they were watered, he was conducting them again to their stable. The man who had played the elephant the trick was still sitting at his door, when, before he was aware, the animal ran at him, threw his trunk around his body, and, dashing him to the ground trampled him immediately to death.

The following interesting example of an elephant resenting an injury is related by M. F. Cuvier. This animal was intrusted, at the age of two or three years, to a young man who took care of it, and who taught it various exercises, which he made it repeat for the amusement of the public. It was entirely obedient to its master, and felt a lively affection for him. Not only did it submit, without the smallest hesitation, to all his commands, but was even unhappy in his absence: it repelled the advances of every other person, and even seemed to eat with a kind of

regret when its food was presented by a strange hand. So long as this young man was under the eye of his father, the proprietor of the elephant, whether the influence of his family had restrained him, or age had not yet developed his bad propensities, he conducted himself with propriety towards the animal intrusted to his care ; but, when the elephant came to be placed in the royal menagerie, and the young man, who was employed to take charge of it, was left to himself, things became changed : he gave himself up to dissipation, and neglected his duties ; he even went so far, in his moments of drunkenness, as to strike his elephant. The latter, from being habitually cheerful, became melancholy and taciturn, insomuch as to be thought unwell. It still, however, obeyed, but no longer with that briskness which showed that all its exercises were regarded by it as amusements ; signs of impatience were even sometimes manifested, but they were immediately repressed. It was obvious that very different feelings were combating within ; but the situation, so unfavourable to obedience, to which this violent state reduced it, did not the less contribute to excite the discontent of its keeper. It was in vain that the most positive orders were given to this young man, never to strike his elephant, nor would he be convinced that good treatment alone could restore the original docility of the animal. Mortified at having lost his authority over the elephant, and, especially, at not going through his exercises with the same success as formerly, his irritation increased, and one day, being more unreasonable than usual, he struck the animal with so much brutality, that the latter, goaded to the utmost, uttered such a cry of rage, that its dismayed keeper, who had never before heard it emit such a terrible roar, ran off precipitately ; and it was well for him, for henceforth the elephant would not so much as suffer him to come near it. At the mere sight of him, it became furious ; and all the means which were afterwards employed in order to inspire it with better feelings, were ineffectual. Hatred supplied the place of love,—indocility succeeded to obedience ; and, as long as the animal lived, these two were its predominating feelings.

A sentinel at the menagerie of the *Jardin du Roi*, at Paris, was in the habit of forbidding visitors from giving the elephant any thing to eat. This admonition was extremely disagreeable to the female elephant, and she took a great dislike to the sen-

tinel in consequence. She had several times endeavoured to make him desist from interfering, by squirting water over him, but without effect. One day, when several visitors came to see these animals, a person offered a piece of bread, which he had taken on purpose, to the female, which being observed by the sentinel, he stepped forward to repeat his usual admonition, when the elephant, aware of his intention, moved opposite to him, and threw a quantity of saliva in his face. This excited the laughter of all the bystanders; but the sentinel coolly wiped his face, placed himself a little to one side, and resumed his wonted vigilance. Not long after, he found it necessary to interpose his bayonet between the hand of a person, who was offering the elephant something, and the trunk of the animal, but, scarcely had he done so, when the elephant tore his musket out of his hand, wound her trunk round it, trode upon it, and broke it to pieces.

It is related by M. Navarette, that an elephant driver at Macassar, upon one occasion, out of mere wantonness, struck a cocoa nut twice against the forehead of his elephant to break it. On the following day, the animal saw some cocoa nuts exposed in the street for sale; it took one of them up with its proboscis, and beat the driver on the head with it, and killed him on the spot. "So much," says Navarette, "for tampering with elephants."

Mr Zoffary, an English artist, once witnessed the dreadful effects of an elephant being irritated: During the government of Lord Cornwallis, the vizier of Oude sent an embassy to Calcutta; and, in the train, was a large male elephant, which carried a number of people on its back. The mohout struck him violently with his hawkuss. The animal became infuriated, and, raising its trunk over its head, pulled its conductor from his seat, and, suspending him for an instant in the air with its trunk, dashed him on the ground with all its power, and killed him in an instant.

An amusing anecdote is related by Captain Williamson, of an elephant, which went by the name of the Paugal, or fool, who, by his sagacity, showed he could act with wisdom. This animal, when on a march, refused to carry on his back a larger load than was agreeable to him, and pulled down as much of the burden as reduced it to the weight which he conceived proper for him to

bear. One day, the quarter-master of brigade became enraged at this obstinacy in the animal, and threw a tent pin at his head. A few days afterwards, as the animal was on his way from camp to water, he overtook the quarter-master, and, seizing him in his trunk, lifted him into a large tamarind tree, which overhung the road, and left him to cling to the branches, and to get down the best way he could.

Elephants understand what is said to them, especially when accompanied by signs ; but instances have been known where they could be directed by their keeper to perform pieces of work, to which they were by no means accustomed. " I once saw," says M. d'Obsonville, " two elephants employed in demolishing a wall, by the orders of their cornacs, which they had previously received, and were encouraged to undertake the task by a promise of fruits and brandy. They united their powers, placed their trunks together—which were defended by a covering of leather—pushed against the strongest part of the wall, repeating their efforts, while they carefully watched the equilibrium. At length, when sufficiently loosened, by applying their whole strength, and giving a violent push, they speedily retreated out of the reach of danger, and the whole wall fell to the ground."

M. Tornen informs us, that elephants are often employed to pile wood at Mahie, on the coast of Malabar, and other parts of India ; and that, after piling heap upon heap, they have been known to draw themselves back, to see that it was on a level, and perfectly perpendicular, and to correct any inaccuracy in these respects. Elephants also are sometimes employed to roll barrels to a distance, which they do with great speed and neatness.

In early times, elephants were employed in India in the launching of vessels. Ludolph mentions one which, upon being commanded to pull a large ship into the water, made an attempt to do so, which, however, proved beyond his strength. The master, in a sarcastic tone, said to the keeper, " Take away that lazy beast, and put another in his stead." The noble animal immediately redoubled his efforts, fractured his skull, and fell dead on the spot.

Captain Williamson mentions a remarkable circumstance of a male elephant, the property of a gentleman of Chittagong,

upon which all efforts to render him docile had for ten years proved ineffectual: "He was repeatedly offered for sale at a low price; but his character was so well known, that none would purchase him. It is customary in that district to have the firewood, which is cut into stumps of about a foot or less in diameter, and perhaps five or six feet long, piled regularly, and this work is usually performed by elephants. When properly trained, they will execute it as well as any labourers. The animal in question could not be induced to perform this drudgery, and, all attempts to enforce his obedience having proved useless, his master at last gave up the point. To his utter astonishment, the elephant became suddenly good tempered, and went of his own free will to the wood yard, where he not only exerted himself greatly, but was, in the regularity of his work, at least equal to those which had more practice." It would be difficult to account for this extraordinary alteration,—whether it resulted from some physical change, or proceeded from reasoning on the good treatment which he saw was bestowed on his industrious companions, in comparison with the constant punishment to which he was subjected.

During a war in the East Indies, many Frenchmen had occasion to observe the sensible conduct of an elephant that had received a flesh wound from a cannon ball. Having been conducted twice or thrice to the hospital by its cornac, where it lay down at his command to have the wound dressed, afterwards it always went by itself. The surgeon, in employing such means as he thought would conduce to a cure, sometimes cauterized the wound: and, although the animal expressed a feeling of pain, which this operation occasioned it, by groaning, yet it never showed any other sentiment towards the operator but those of gratitude and affection. At length, the surgeon effected a complete cure, when the animal discontinued his visits.

Germanicus Cæsar, in the reign of Tiberius, exhibited at Rome a play, in which there were twelve elephant performers, six of them males, and six females, clothed as men and women. At the command of their keeper, they danced, and performed many other feats; after which, a most sumptuous banquet was served up for their refreshment. The table was covered with all sorts of dainties, and the most expensive wines were served up in golden goblets to them. Purple carpets were placed

round for the animals to lie upon, in the Roman style, when feasting, under which were soft beds. The elephants laid themselves down on these carpets, and, on receiving a signal, they stretched out their trunks to the table, and commenced the feast with great glee, and ate and drank in as orderly a manner as Roman citizens.

Among the ancients, elephants, indeed, were often exhibited, and in our own days, we have seen them made to play their part in dramatic entertainments. The celebrated female elephant *Mademoiselle Jack*, which was exhibited at the *Adelphi theatre*, and in almost all the principal cities of Great Britain, in the years 1828, 29, and 30, was an animal of great sagacity. She performed a character, in a piece got up for the purpose, with as much precision as any of the actors: she marched in a procession, carried a letter, and delivered it to a particular character; removed the diadem from the head of the usurper, and placed it on the head of its rightful owner, and carried the prince off the stage with her trunk. A rich banquet was then laid out for her; she sat down at table on her hind quarters, pulled a bell for the servants to fetch and remove the dishes which he had emptied; drew the cork out of a bottle of wine, took the bottle into her trunk, and emptied it into the aperture of it, rolled part of the proboscis around it, and then poured the liquor down her throat. She then moved in the manner of a dance to music; she took a hat, which was placed about eighteen feet from the ground, and placed it on her keeper's head; and all this amid the shouts of the audience, which did not at all decompose her. When this animal was exhibited at the *Caledonian theatre*, *Edinburgh*, it was necessary to erect a gangway from behind, by which she was to ascend to the stage, a height of nearly thirty feet. I witnessed her first ascent. The caution she exhibited on this occasion was truly wonderful: At every step she ascended, she carefully felt with her trunk every board and support, to ascertain if it was secure: and before she allowed the weight of her body to be upon any spot, she first tried its strength, by gradually pressing upon it as she ascended. The first time she got up, it took her upwards of twenty minutes; and she was equally cautious in her descent. But afterwards, she ascended with comparative rapidity, having become acquainted with its perfect security. Although *Mademoiselle Jack* was

exceedingly good tempered, a short time after she left Edinburgh she killed her keeper in a fit of rage.

Of the vital power or tenacity of life possessed by the elephant, we have many instances. Bosmann relates, that one morning, at six o'clock, an elephant came towards Fort Mina, on the Gold Coast of Africa, and took his route along the river, at the foot of Mount St Jago. Some of the negroes ran after, and about him, unarmed, and he neither exhibited signs of fear, anger, nor suspicion. But a Dutch officer shot at him, and wounded him over the eye. The animal, however, did not alter his course ; but, pricking his ears, proceeded to a Dutch garden, where the director-general, and some other officers, belonging to the Fort, were sitting, under the shade of some palm trees. He made an attack on the trees, and had torn down a dozen of them with the greatest facility, when upwards of a hundred bullets were discharged at him. He bled over his whole body, but still kept his legs, and did not halt in the least. A negro now, to plague the elephant, pulled him by the tail ; at which the animal, being provoked, seized him with his trunk, threw him to the ground, thrust his tusks twice through his body, and transfixed him to the ground. As soon as the negro was killed, he turned from him, and suffered the other negroes to take away his body unmolested. He now remained upwards of an hour longer in the garden and seemed to have directed his attention to the Dutchmen, who were sitting at the distance of about fifteen paces from him. As these had expended their ammunition, fearing the animal might attack them, they made good their retreat. In the mean time, the elephant reached another gate ; and, although the garden wall consisted of a double row of stones, he easily threw it down, and went out by the breach. He now walked slowly to a rivulet, and washed off the blood that covered him, by taking a quantity of water in his trunk, and then throwing it over his body. He again returned to the palm trees, and broke some boards that were placed there for the purpose of building a vessel. The Dutchmen, in the mean time, procured a fresh supply of powder and ball ; and their repeated shots causing an immense loss of blood, rendered him unable to make any further resistance ; and he fell. To prevent any further mischief from him, they cut off his trunk, which was accomplished with great difficulty. The pain of this operation

caused the animal to utter a hideous roar ; he made a violent effort to get up, but fell back, and expired. The poor brute had received upwards of two hundred balls in his body, and had never emitted a sound, but that when his trunk was cut off. The elephant which was killed at Exeter Change in 1826, and of which an account is given in the notes to Goldsmith, received 120 musket balls before he expired.

Mr Burchell, in his ' Travels,' gives an account of the death of a native African, by an elephant. It shows the immense power of this animal, and especially exhibits the strength of his proboscis. Carel Krieger was an independent and fearless hunter, and being also an excellent marksman, often ventured into the most dangerous situations. One day, having with his party pursued an elephant which he had wounded, the irritated animal suddenly turned round, and, singling out from the rest the person by whom he had been injured, seized him with his trunk, and lifting his wretched victim high in the air, dashed him with dreadful force to the ground. His companions, struck with horror, fled precipitately from the fatal scene, unable to turn their eyes to behold the rest of the tragedy ; but on the following day, they repaired to the spot, where they collected the few bones that could be found, and buried them near the spring. The enraged animal had not only trampled his body literally to pieces ; but could not feel its vengeance satisfied, till it had pounded the very flesh into the dust, so that nothing of this unfortunate man remained, excepting a few of the larger bones.

We shall conclude our anecdotes of the elephant with one which shows it in an amiable light. The Rajah Dowlah chose once to take the diversion of hunting in the neighbourhood of Lucknow, where there was a great abundance of game. The grand vizier rode his favourite elephant, and was accompanied by a train of Indian nobility. They had to pass through a ravine leading to a meadow, in which several sick persons were lying on the ground, in order to receive what benefit they could from exposure to the air, and the rays of the sun. As the vizier approached with his numerous hunting party, the attendants of these sick persons betook themselves to flight, leaving the helpless patients to their fate. The nabob seriously intended to pass with his elephants over the bodies of these poor wretches.

He therefore ordered the driver to goad on his beast. The elephant, as long as he had a free path, went on at full trot; but, as soon as he came to the first of the sick people, he stopped. The driver goaded him, and the vizier cursed; but in vain. "Stick the beast in the ear!" cried the nabob. It was done; but the animal remained stedfast before the helpless human creatures. At length, when the elephant saw that no one came to remove the patients, he took up one of them with his trunk, and laid him cautiously and gently to a side. He proceeded in the same way with a second and a third; and, in short, with as many as it was necessary to remove, in order to form a free passage, through which the nabob's retinue could pass without injuring any of them. How little did this noble animal deserve to be rode by such an unfeeling brute in human form!

THE RHINOCEROS.

IN common with the lion and the elephant, the rhinoceros frequents the vast deserts of Asia and Africa. Its appearance is chiefly remarkable, from possessing one solid conical horn on the nose, sometimes three feet in length, and from having the skin disposed about the neck in large plaits or folds. The body of this animal is little inferior in size to the elephant, but he is much shorter in the legs; his length, from the muzzle to the tail, is nearly twelve feet, and the girth about the same measurement; and, from the shortness of its legs, the belly nearly touches the ground. The pendulous upper lip of the rhinoceros assists it in a great measure to collect its food.

The Indian rhinoceros, without being ferocious, is very intractable and rude. It is subject to paroxysms of fury, which nothing can appease. It frequents moist and marshy ground, is fond of wallowing in the mire, and seldom quits the banks of rivers. It inhabits Bengal, Siam, Java, Sumatra, Ceylon, and many places of Africa. It does not seem a numerous species, and is less diffused than the elephant. The female produces but one at a time. The sense of smell in the rhinoceros is said to be exquisite, and hunters are in consequence always obliged to keep to the windward of him. They follow him unobserved, till he lies down to sleep, then steal close to him, and discharge their muskets in the lower part of his belly, where the skin is soft. The rhinoceros can run with great swiftness, and, from his strength and hard impenetrable hide, he is capable of rushing through the thickets with resistless fury; almost every obstacle is quickly overturned.

The first rhinoceros which was brought to England was in 1684. The next we have any distinct account of was imported from Bengal about the year 1743. Another was brought from

Atchaws, in the dominions of the King of Ava, and was exhibited at Paris. He was exceedingly docile, and showed great fondness for some of his attendants. He was fed upon hay, corn, and sharp prickly plants, of which he was excessively fond.

Three of these animals have been brought to Britain within the last sixty years. In 1790, one arrived in England, about five years old, and was purchased by Mr Pidcock of Exeter Change, for seven hundred pounds. He was very mild, and allowed himself to be patted on the back by strangers. He was quite obedient to the orders of his keepers, and would move through the apartment to exhibit himself. His daily allowance of food was twenty-eight pounds weight of clover, besides an equal allowance of ship biscuit, and a great quantity of greens; and he drank five pails of water every twenty-four hours. He liked sweet wines, and was sometimes indulged with a few bottles. His voice resembled that of a calf, which he usually exerted at the sight of fruit, or any favourite food. This animal suffered much from a dislocation of the joint of one of his fore legs, which induced inflammation. He died nine months afterwards. It was remarkable with what facility incisions made in this limb healed: in these openings, to endeavour to effect a recovery, they were always found to be closed up in twenty-four hours.

The following particulars of a rhinoceros, exhibited at Exeter Change, was obtained by the late Sir Everard Home, from the person who kept him for three years, when it died; and published in the 'Philosophical Transactions' for 1822. "It was so savage," says he, "that about a month after it came, it endeavoured to kill the keeper, and nearly succeeded. It ran at him with the greatest impetuosity, but, fortunately, the horn passed between his thighs, and threw the keeper on its head; the horn came against a wooden partition, into which the animal forced it to such a depth as to be unable for a minute to withdraw it, and, during this interval, the man escaped. Its skin, though apparently so hard, is only covered with small scales, of the thickness of paper, with the appearance of tortoise shell; at the edges of these the skin itself is exceedingly sensible, either to the bite of a fly or the lash of a whip. By this discipline, the keeper got the management of it, and the

animal was brought to know him ; but frequently, (more especially in the middle of the night,) fits of frenzy came on ; and, while these lasted, nothing could control its rage, the rhinoceros running with great swiftness round the den, playing all kinds of antics, making hideous noises, knocking every thing to pieces, disturbing the whole neighbourhood, and then, all at once, becoming quiet. While the fit was on, even the keeper durst not make his approach. The animal fell upon its knee to enable the horn to be borne upon any object. It was quick in all its motions, ate voraciously all kinds of vegetables, appearing to have no selection. They fed it on branches of willow. Three years' confinement made no alteration on its habits."

The AFRICAN OR TWO-HORNED RHINOCEROS differs materially from the Indian rhinoceros in the appearance of his skin, which is devoid of the large folds and wrinkles of that species, having merely a slight plait across the shoulders, and some fainter wrinkles on the sides, being comparatively smooth, when opposed to the Indian species, having no hair on any part of it, except at the edge of the ears, and extremity of the tail. Mr Burchell ascertained that musket balls, composed of lead and tin, easily penetrated the skin of this species, though they were flattened by striking against the bones ; but he is of opinion, that balls of lead alone, or, if fired with a weak charge of powder, might possibly be turned by the thickness of the hide. The flexible upper lip in this animal, like that of the former species, is of great use in collecting its food.

At first sight, this animal has much the appearance of an enormous hog, which it resembles, not merely in its general form, but also in the contour of the head, the smallness of its eyes, and size of its ears ; but, in its clumsy and rudely formed feet, it is more allied to the hippopotamus and elephant. Mr Burchell measured an African rhinoceros, which was eleven feet two inches from the point of the nose to the insertion of the tail, following the undulations, but, in a strait line, was only nine feet three inches ; the tail, which was flattened vertically at its extremity, was twenty inches ; and the greatest girth of the body was eight feet four inches. The organs of smell, and other senses in this species strongly resemble that of the Indian rhinoceros, and its habits are so nearly allied, that a repetition of them is unnecessary.

Some years ago, a party of Europeans, with their native attendants and elephants, met with a small herd of seven of them. These were led by a larger and more powerful animal than the rest. When this large leader charged the hunters, the first elephants, in place of using their tusks as weapons, which they are generally in the practice of doing, wheeled round, and received the blow of the rhinoceros's horn on their hind quarters; and, so powerful was the concussion, that it brought them instantly to the ground, with their riders, and as soon as they could get on their feet again, the brute was ready to repeat the attack, and was certain to produce another fall; and in this manner did the contest continue, until four of the seven were killed, when the rest made good their retreat.

THE HIPPOPOTAMUS.

THE hippopotamus is larger than the rhinoceros, with a capacious head and mouth, and a hide of two inches in thickness. It is an inhabitant of the countries bordering on the larger rivers of Africa, and generally where the banks are muddy. It spends the greater part of its time under water, feeding on water plants and roots, at the bottom of rivers. It seldom quits the water, except during the night, in quest of food; but whenever it hears the slightest noise, it betakes itself to that element, and dives instantly to the bottom; and when it ascends to the surface to breathe, the nostrils only are above the level; hence, it is very difficult to kill it.

The hippopotamus is a gregarious animal, and used to be seen in early times in Egypt. It is now seldom to be met with in that country, its ranges seeming to be confined to Southern Africa. Burckhardt says,—“It is very common in Dongola. It is a dreadful plague there, on account of its voracity, and the want of means in the inhabitants to destroy it. It often descends the Nile as far as Sukkot. In 1812, several of them passed the Bakr el Hadjar and made their appearance at Wady Halfa and Den, an occurrence unknown to the oldest inhabitants. One was killed by an Arab with a musket ball, over his right eye. The peasants ate the flesh; and the skin and teeth were

sold to a merchant of Sioutt. Another continued its course northward, and was seen beyond the cataract of Assouan, at Derau, one day's march north of the place." During the stay of Mr Burchhardt at Boeydha, there was a hippopotamus in the river, which made great havock in the neighbouring fields. He usually left the water at night, voraciously ate up the grain, and destroyed a great deal by his ponderous feet.

Mr Burchell, who opened the stomach of one, found that it contained about six bushels of chewed grass. The food passes in a very undigested state, and even has more the appearance of mingled grass and straw. He says, the monstrous size, and almost shapeless mass, of even a small hippopotamus, when lying on the ground, appear enormous. The animal is of an uniform colour, which may be correctly imitated by a light tint of China ink. The hide, above an inch in thickness, is hardly flexible; the ribs are covered with a thick layer of fat, known to the colonists as a rarity, by the name of *zeekoe-spek*, or sea-cow pork. This substance can only be preserved by salting, as, in attempting to dry it in the sun, in the same manner as the other parts of the animal are usually treated, it melts away; the rest of the flesh consists entirely of lean.

It is from the skin of the hippopotamus that the celebrated whips, called *korbadj*, are manufactured at Sennaar, and other places above it on the Nile. These are sold at Sheudy, at the rate of sixteen for a Spanish dollar; and in Egypt, where they are in general use, and the dread of every servant and peasant, they bring half a dollar each.

We are but imperfectly acquainted with the biography of this animal, arising in a great measure from the peculiarity of its habits. The time of gestation in the female is said to be nine months, and it produces one at a birth.

In the south of Africa this animal is sometimes caught in pits made in the paths leading to their haunts. Sparrmann says, notwithstanding the unwieldy appearance of the hippopotamus, it can run with considerable swiftness. He mentions, that a negro, who had irritated one, was pursued by it, and had great difficulty in escaping, after a long pursuit. Professor Thunberg mentions, that while on a hunting party, a female came to land, in order to calve. They concealed themselves among the bushes, till the mother and her calf made their ap-

pearance, and were approaching the river. They fired at and killed the female, thinking to secure the young one; but it instinctively made the best of its way to the river, and dived to the bottom.

THE CAMELOPARD OR GIRAFFE.

TILL within these few years, so little was known of this singularly formed animal, beyond what Le Vaillant told us, that its existence was doubted by many, or the accounts of it considered apochryphal. In 1827, all doubts, however, on the subject were dispelled by the Pasha of Egypt sending a present of a camelopard, each, to the kings of England and France. We have no accounts of any other of these animals having been in Europe since the end of the fifteenth century. The one which reached England was a young female, which measured only ten feet when it arrived, but grew upwards of three feet before it died. Its death took place in 1829, if we remember aright. Mr Richard Davis, animal painter to the King, studied its habits very minutely; and in the absence of more direct anecdotes, we cannot do better than lay a few of his interesting observations before our readers.

“In its natural habits,” he says, “I cannot conclude that the giraffe is a timid animal, for, when led out by its keepers, the objects which caught its attention did not create the least alarm, but it evinced an ardent desire to approach whatever it saw; no animal was bold enough to come near it. Its docile, gentle disposition, leads it to be friendly, and even playful, with such as are confined with it; a noise will rouse its attention, but not excite its fear. I do not think it very choice of its food when out, so that it be green and sweet. It is fond of aromatics; the wood of the bough it also eats; our acacia, and others of the mimosa tribe, it does not prefer; and it never attempted to graze; it seemed a painful and unnatural action when it endeavoured to reach the ground; I have seen it try to do so when excited by an object which curiosity led it to examine; its feet were then two yards apart. It was constantly in motion when

the doors of its hovel were open ; but it has no sense of stepping over any obstruction, however low. It is asserted by travellers, that it resembles the camel, in having callosities on the breast and thighs, and that it lies on its belly like that animal. There are between the fore legs what, to the casual observer, may appear to be such, but these are folds of loose skin, which enable it to separate its fore legs when reaching downwards. Its mode of resting is, like most quadrupeds, on one side ; but the operation of lying down is curious and peculiar ; I will endeavour to describe it : We will suppose it to be preparing to lie on the off-side ; the first action is to drop on the fetlock of the off fore leg, then on one knee of the near one, to bring down the other knee ; it then collects its hind legs to perform the next movement, the near one being brought rather forward, but wide, until the off hind leg is advanced between the fore ones ; this requires some time to accomplish, during which it is poised with the weight of its head and neck, until it feels that its legs are quite clear and well arranged ; it then throws itself on one side, and is at ease. When it sleeps, it bends the neck back, and rests the head on the hind quarter."

In respect to what is above stated of the difficulty the giraffe has of reaching the ground with its head, M. Acerbi, who saw the above giraffe, as also the one which was sent to France, together at Alexandria, as well as two others, differs entirely from Mr Davis ; he says, " There are few naturalists who have not contributed to perpetuate the vulgar error, that in eating and drinking from the ground, the giraffe is compelled to stretch his fore-legs *amazingly* forwards. Some even assert that he is obliged to kneel down. Of the few animals which fell under my examination, three took their food from the ground with comparative facility ; and one of them was scarcely under the necessity of moving its fore-legs at all. I should infer that every giraffe, in a natural state, is enabled to eat or drink from the ground without inconvenience ; and that, where any difficulty exists in this respect, it is the effect of habit, acquired in the progress of domestication."

Le Vaillant's enthusiastic description of his first seeing the skin of a giraffe in Africa, and the strong excitement it produced in him to see one of these wonderful animals alive, and the feelings which he experienced at the capture of one, beautifully

illustrates the ardour of a keen naturalist. "I was now struck with a sort of distinction which I perceived on one of the huts; it was entirely covered with the skin of a giraffe. I had never seen this quadruped, the tallest of all those upon the earth. I knew it only from false descriptions and designs, and thus I could scarcely recognise its robe. And yet this was the skin of the giraffe. I was in the country which this creature inhabits. I might probably see some living ones. I looked forward to the moment when I should be thus recompensed, at least in part, for all the sufferings and annoyances of my expedition." . . . "One of the Namaquas, who were my guides, came in great haste, to give me information, which he thought would be agreeable to me. He had seen the strong feeling of pleasure which I had evinced at the sight of the skin of the giraffe; and he had run to say, that he had just found in the neighbourhood one of these animals, under a mimosa, the leaves of which he was browsing upon. In an instant, full of joy, I leapt upon my horse. I made Bernfry, [one of his men,] mount another; and, followed by my dogs, I flew towards the mimosa. The giraffe was no longer there. We saw her cross the plain towards the west; and we hastened to overtake her. She was proceeding at a smart trot; but did not appear to be at all hurried. We galloped after her, and occasionally fired our muskets; but she insensibly gained so much upon us, that, after having pursued her for three hours, we were forced to stop, because our horses were quite out of breath; and we entirely lost sight of her. The pursuit had led us far away from each other, and from the camp; and the giraffe having made many turns and doubles, I was unable to direct my course towards home. It was noon. I already began to feel hunger and thirst; and I found myself alone in a steril and arid spot, exposed to a burning sun, without the least shelter from the heat, and destitute of food." The traveller, however, shot and cooked some birds of the partridge genus; and was fortunate to rejoin his companions in the evening. "The next morning, my whole caravan joined me again. I saw five other giraffes, to which I gave chase: but they employed so many stratagems to escape, that, after having pursued them the whole day we entirely lost them as the night came on. I was in despair at this ill success. The next day, the 10th of November, was the happiest of my life. By sunrise, I was in pursuit of game, in the

hope to obtain some provisions for my men. After several hours' fatigue, we descried, at the turn of a hill, seven giraffes, which my pack instantly pursued. Six of them went off together; but the seventh, cut off by my dogs, took another way. Bernfry was walking by the side of his horse; but in the twinkling of an eye he was in the saddle, and pursued the six. For myself, I followed the single one at full speed; but, in spite of the efforts of my horse, she got so much ahead of me, that, in turning a little hill, I lost sight of her altogether; and I gave up the pursuit. My dogs, however, were not so easily exhausted. They were soon so close upon her, that she was obliged to stop, to defend herself. From the place where I was, I heard them give tongue with all their might; and, as their voices appeared all to come from the same spot, I conjectured that they had got the animal in a corner; and I again pushed forward. I had scarcely got round the hill, when I perceived her surrounded by the dogs, and endeavouring to drive them away by heavy kicks. In a moment I was on my feet! and a shot from my carbine brought her to the earth. Enchanted with my victory, I returned to call my people about me, that they might assist in skinning and cutting up the animal. Whilst I was looking for them, I saw Klaas Baster, [another of his men,] who kept making signals, which I could not comprehend. At length, I went the way he pointed; and, to my surprise, saw a giraffe standing under a large ebony tree, assailed by my dogs. It was the animal I had shot, who had staggered to this place; and it fell dead at the moment I was about to take a second shot. Who could have believed, that a conquest like this would have excited me to a transport almost approaching to madness! Pains, fatigues, cruel privation, uncertainty as to the future, disgust sometimes as to the past,—all these recollections and feelings fled at the sight of this new prey. I could not satisfy my desire to contemplate it. I measured its enormous height. I looked from the animal to the instrument which had destroyed it, I called and recalled my people about me. Although we had combated together the largest and the most dangerous animals, it was I alone who had killed the giraffe. I was now able to add to the riches of natural history. I was now able to destroy the romance which attached to this animal, and to establish a truth. My people congratulated me on my triumph. Bernfry alone

was absent ; but he came at last, walking at a slow pace, and holding his horse by the bridle. He had fallen from his seat, and injured his shoulder. I heard not what he said to me. I saw not that he wanted assistance ; I spoke to him only of my victory. He showed me his shoulder ; I showed him my giraffe. I was intoxicated, and I should not have thought even of my own wounds.*

* Second Voyage, en Afrique, tom. ii.

THE CAMEL AND DROMEDARY.

THE camel is considered to be distinguished from the dromedary by having two hunches instead of one, on its back ; but the term camel is the generic name, and is applied to both indiscriminately. The correct distinction of the terms is, dromedary means the swift species of camels, whether with one or two hunches, and camel, the beasts of burthen—a dromedary being to a camel, what a race horse is to a draught horse.

The camel is certainly by far the most useful of all the animals over which the inhabitants of Asia and Africa have acquired dominion. These continents are intersected by vast tracts of burning sand, the seats of desolation and drought, so as apparently to exclude the possibility of any intercourse taking place between the countries that they separate. But by means of the camel, the most dreary wastes are traversed, as by means of navigation, the sea, instead of forming a barrier between different regions, is made subservient to intercourse. The camel's great strength and astonishing powers of abstinence, both from food and drink, render it truly invaluable in these inhospitable countries. Denon tells us, that in crossing the Arabian Desert, a single feed of beans is all their food for a day. Their usual meal is a few dates, or some small balls of barleymeal, or occasionally the dry and thorny plants they meet with at remote intervals, during their progress across the Desert. With these scanty meals, the contented creature will lie down to rest amid the scorching sands, without exhibiting either exhaustion or a desire for better fare. Well may the Arab call the camel "the ship of the Desert !"

The first trade in Indian commodities, of which we have any account, (Genesis xxxvii. 25.) was carried on by camels ; and they still continue to be the instruments employed in the con-

veyance of merchants and merchandise throughout Turkey, Persia, Arabia, Egypt, Barbary, and many contiguous countries. The merchants assemble in considerable numbers, forming themselves into an association or caravan, for mutual protection against robbers, and other dangers incident to the journey. These journeys are performed by camels of the largest kind, who go at a slow pace, seldom exceeding ten or twelve leagues a day. Every night the camels are unloaded, and if pasture happens to be at the resting place, they are allowed to range at liberty. The heirie, dromedary, or swift camel, goes, however, at a great rate through the desert, but its motion is so violent that it can only be endured by the hardy Arabs who are accustomed to it. The most inferior kind of heirie are called *Talatayee*, a term expressive of their going the distance of three days' journey in one; the next kind is called *Sebayee*, a term appropriated to that which goes seven days' journey in one; and this is the general character. There is also one called *Tasayee*, or, the heirie of nine days: these are extremely rare. The swiftness of this useful animal is thus described by the Arabs, in their figurative manner: "When thou shalt meet a heirie, and say to the rider, '*Salem aliek*,'* ere he shall have answered thee, '*Aliek salem*,'† he will be afar off, and nearly out of sight; for his swiftness is like the wind."

The camel has the faculty of scenting water at a great distance, by which means the caravan is often saved from destruction; as the animal, when his instinct intimates its vicinity, invariably bends his course directly towards it, which the drivers soon understand, from the determination they display to turn aside from the direction they are pursuing. In seasons when the wells are mostly dried up, the camels often die in their journeys. When they fall, the Arabs open their stomachs, and drink the water contained in them.

The following interesting story of the sufferings of a caravan from thirst, is related by Burckhardt, and illustrates in a remarkable degree the instinct of the camel in knowing their approach to water:—"In the month of August, a small caravan prepared to set out from Berber to Daraou. They consisted of five merchants and about thirty slaves, with a proportionate

* The common salutation, "Peace be between us!"

† The answer, "There is peace between us."

number of camels. Afraid of the robber Naym, who at that time was in the habit of waylaying travellers about the wells of Nedjeym, and who had constant intelligence of the departure of every caravan from Berber, they determined to take a more easterly road, by the well of Owareyk. They had hired an Ababde guide, who conducted them in safety to that place, but who lost his way from thence northward, the route being little frequented. After five days' march in the mountains, their stock of water was exhausted, nor did they know where they were. They resolved, therefore, to direct their course towards the setting sun, hoping thus to reach the Nile. After experiencing two days' thirst, fifteen slaves and one of the merchants died; another of them, an Ababde, who had ten camels with him, thinking that the animals might know better than their masters where water was to be found, desired his comrades to tie him fast upon the saddle of his strongest camel, that he might not fall down from weakness, and thus he parted from them, permitting his camels to take their own way; but neither the man nor his camels were ever heard of afterwards. On the eighth day after leaving Owareyk, the survivors came in sight of the mountains of Shigre, which they immediately recognized; but their strength was quite exhausted, and neither men nor beasts were able to move any farther. Lying down under a rock, they sent two of their servants, with the two strongest remaining camels, in search of water. Before these two men could reach the mountain, one of them dropped off his camel, deprived of speech, and able only to move his hands to his comrade as a sign that he desired to be left to his fate. The survivor then continued his route; but such was the effect of thirst upon him, that his eyes grew dim, and he lost the road, though he had often travelled over it before, and had been perfectly acquainted with it. Having wandered about for a long time, he alighted under the shade of a tree, and tied the camel to one of its branches: the beast, however, smelt the water, (as the Arabs express it,) and, wearied as it was, broke its halter, and set off galloping in the direction of the spring, which, as afterwards appeared, was at half an hour's distance. The man, well understanding the camel's action, endeavoured to follow its footsteps, but could only move a few yards; he fell exhausted on the ground, and was about to breathe his last, when Providence led that way from a neighbouring en-

campment, a Bisharye Bedouin, who, by throwing water upon the man's face, restored him to his senses. They then went hastily together to the water, filled the skins, and, returning to the caravan, had the good fortune to find the sufferers still alive. The Bisharye received a slave for his trouble."

The only place in Europe where camels are bred, and used to any extent as beasts of burden, is at San Rossora. They are the property of the government of Tuscany. It is not distinctly known how long it is since this stud was established, but it is supposed to have existed since before the middle of the sixteenth century. They are much inferior in size to those of Arabia. The female camel goes with young between eleven and twelve months; and no instance has occurred at San Rossora where they have produced more than one at a birth. It has been attempted, but without success, to introduce camels into the West India Islands.

Camels are intelligent animals, and are very sensible of bad usage, or of being loaded beyond what they are able to carry with ease. They are said to retain a long recollection of an injury, and to avail themselves of the first favourable opportunity to be revenged. And when they have retaliated the injury, they no longer bear ill will, but afterwards become reconciled.

THE BEAR.

THE brown bear of the Alps and the black bear of North America, nearly resemble each other in every thing but the colour of their furs. The Greenland or white bear, again, differs materially in appearance, size, and colour from both.

THE BROWN BEAR is a solitary animal ; for he only remains associated with his mate for a short period, and then retires to his sequestered retreat, which is usually in the hole of a rock, the cavity of a tree, or a pit in the earth, which the animal frequently digs for himself. He sometimes constructs a kind of hut, composed of the branches of trees, which he lines with moss. In these situations he continues, for the most part, in a lethargic state, taking no food, but subsisting entirely on the absorption of the fat which he has accumulated in the course of the summer.

The modes that are adopted by the inhabitants of different countries, for taking or destroying bears, are various. Of these, the following appear to be the most remarkable : In consequence of the well known partiality of these animals for honey, the Russians sometimes fix to those trees where bees are hived, a heavy log of wood, at the end of a long string. When the unwieldy creature climbs up, to get at the hive, he finds himself interrupted by the log ; he pushes it aside, and attempts to pass it ; but, in returning, it hits him such a blow, that, in a rage, he flings it from him with greater force, which makes it return with increased violence ; and he sometimes continues this, till he is either killed, or falls from the tree.

In Lapland, hunting the bear is often undertaken by a single man, who, having discovered the retreat of the animal, takes his dog along with him, and advances towards the spot. The jaws are tied round with a cord, to prevent his barking ; and the man

holds the other end of this cord in his hand. As soon as the dog smells the bear, he begins to show signs of uneasiness, and, by dragging at the cord, informs his master that the object of his pursuit is at no great distance. When the Laplander, by this means, discovers on which side the bear is stationed, he advances in such a direction, that the wind may blow from the bear to him, and not the contrary; for otherwise, the animal would, by his scent, be aware of his approach, though not able to see the enemy, being blinded by sunshine. The olfactory organs of the bear are exquisite. When the hunter has advanced to within gunshot of the bear, he fires upon him; and this is very easily accomplished in autumn, as he is then more fearless, and is constantly prowling about for berries of different kinds, on which he feeds at this season of the year. Should the man chance to miss his aim, the furious beast will directly turn upon him in a rage, and the little Laplander is obliged to take to his heels with all possible speed, leaving his knapsack behind him on the spot. The bear, coming up to this, seizes upon it, biting and tearing it into a thousand pieces. While he is thus venting his fury, the Laplander, who is generally a good marksman, re-loads his gun, and usually destroys him at the second shot; if not, the bear in most cases runs away.

We have the following account, by Mr Lloyd in his 'Field Sports,' of a scene at bear-hunting in Scandinavia. The manner in which this sport is performed, is by a great number of people collecting, and forming a circle, which gradually closes, and forces the animals from their retreat. A hunting match of this kind is termed a *skall*. It is thus narrated:—"The skall to which this anecdote relates, and at which Captain Eurenus himself was present, took place about the year 1790, in the parish of Yestram, province of Wernersborg. It was conducted in the usual manner, every person having his proper position assigned to him. One man, however, an old soldier, who was attached to the hallet, or stationary division of the skall, thought proper to place himself in advance of the rest, in a narrow defile, through which, from his knowledge of the country, he thought it probable the bear would pass. He was right in his conjecture: for the animal soon afterwards made his appearance, and faced directly towards him. On this, he levelled, and attempted to discharge his piece; but, owing to the morning being wet,

the priming had got damp, and the gun missed fire. The bear was now close upon him, though it was probable that, if he had stepped to the one side, he might still have escaped; but, instead of adopting this prudent course, he attempted to drive the muzzle of his gun, to which, however, no bayonet was attached, down the throat of the enraged brute. This attack the bear parried with the skill of a fencing-master; when, after wresting the gun out of the hands of the man, he quickly laid him prostrate. All might have ended well; for the bear, after smelling at his antagonist, who was lying motionless and holding his breath, as if he had been dead, left him almost unhurt. The animal then went to the gun, which was only at two or three feet distance, and began to overhaul it with his paws. The poor soldier, however, who had brought his musket to the skull, contrary to the orders of his officers, and knowing that, if it was injured, he should be severely punished, on seeing the apparent jeopardy in which it was placed, quietly stretched out his hand, and laid hold of one end of it, the bear having it fast by the other. On observing this movement, and that the man, in consequence, was alive, the bear again attacked him; when, seizing him with his teeth by the back of the head, as he was lying with his face on the ground, he tore off the whole of his scalp, from the nape of the neck upwards; so that it merely hung to the forehead by a strip of skin. The poor fellow, who knew that his safety depended upon his remaining motionless, kept as quiet as he was able; and the bear, without doing him much farther injury, laid himself along his body. Whilst this was going forward, many of the people, and Captain Eurenus among the rest, suspecting what had happened, hastened towards the spot, and advanced within twelve or fifteen paces of the scene of action. Here they found the bear still lying upon the body of the unfortunate man. Sometimes the animal was occupying himself in licking the blood from the bare skull, and at others, in eyeing the people. All, however, were afraid to fire, thinking either that they might hit the man, or that, even if they killed the bear, he might, in his last agonies, still farther mutilate the poor sufferer. In this position, the soldier and the bear remained a considerable time, until at last the latter quitted his victim, and slowly began to retreat, when a tremendous fire being opened upon him, he instantly fell dead.

hearing the shots, the poor soldier jumped up, his scalp hanging over his face, so as completely to blind him ; when, throwing it back with his hands, he ran towards his comrades like a madman, frantically exclaiming, ‘The bear ! the bear !’ The mischief, however, was done, and was irreparable. The only assistance he could receive, was rendered to him by a surgeon who happened to be present, and who severed the little skin which connected the scalp with the forehead, and then dressed the wound in the best manner he was able. The scalp, when separated from the head, Captain Eurenus described as exactly resembling a *peruke*. In one sense, the catastrophe was fortunate for the poor soldier : At this time, every one in the army was obliged to wear his hair of a certain form, which was extremely troublesome to dress and keep in order during the day ; and he, in consequence, being now without any, immediately got his discharge.”

Bear-baiting was a favourite amusement of our ancestors. Sir Thomas Pope entertained Queen Mary and the Princess Elizabeth, at Hatfield, with a grand exhibition of a “bear-baiting, with which their Highnesses were right well content.” Bear-baiting was part of the amusement of Elizabeth, among “the princely pleasures of Kenilworth castle.” Rowland White, speaking of the Queen, then in her sixty-seventh year, says,—“Her Majesty is very well. This day she appoints a Frenchman to do feats upon a rope, in the Conduit Court. To-morrow she has commanded the bears, the bull, and the ape, to be bayted in the tilt-yard. Upon Wednesday, she will have solemn dauncing.” The office of chief master of the bear was held under the crown, with a salary of 16d. per diem. Whenever the king chose to entertain himself or his visitors with this sport, it was the duty of the master to provide bears and dogs, and to superintend the baiting ; and he was invested with unlimited authority to issue commissions, and to send his officers into every county in England, who were empowered to seize and take away any bears, bulls, or dogs, that they thought meet, for his Majesty’s service. The latest record, by which this diversion was publicly authorized, is a grant to Sir Saunders Duncombe, October 11, 1561, “for the sole practice and profit of the fighting and combating of wild and domestic beasts, within the realm of England, for the space of fourteen years. Occa-

sional exhibitions of this kind were continued till about the middle of the eighteenth century.

We are told in Johnston's *Sketches of India*, that "bears will often continue on the road, in front of the palanquin, for a mile or two, tumbling and playing all sorts of antics, as if they were taught to do so. I believe it is their natural disposition; for they certainly are the most amusing creatures imaginable, in a wild state. It is no wonder they are led about with monkeys, to amuse mankind. It is astonishing, as well as ludicrous, to see them climb rocks, and tumble, or rather roll, down precipices. If they are attacked by a person on horseback, they stand erect on their hind legs, showing a fine set of white teeth, and make a crackling kind of noise. If the horse comes near them, they try to catch him by the legs; and, if they miss him, they tumble over and over several times. They are easily speared by a person mounted on horseback, that is bold enough to go near them."

Bears climb trees with great ease. Of their fondness for climbing, we have the following curious instance. In the end of June, 1825, a tame bear took a notion of climbing up the scaffolding placed round a brick stalk, erecting by Mr G. Johnstone, at St Rollox. He began to ascend very steadily, cautiously examining, as he went along, the various joists, to see if they were secure. He at length, to the infinite amusement and astonishment of the workmen, reached the summit of the scaffolding, one hundred and twenty feet high. Bruin had no sooner attained the object of his wishes, than his physiognomy exhibited great self-gratulation; and he looked about him with much complacency, and inspected the building operations going on. The workmen were much amused with their novel visitor; and every mark of civility and attention was shown him, which he very condescendingly returned, by good-humouredly presenting them with a shake of his paw. A lime bucket was now hoisted, in order to lower him down; and the workmen, with all due courtesy, were going to assist him into it; but he declined their attentions, and preferred returning in the manner he had gone up. He afterwards repeated the visit.

"Bears," says Mr Lloyd, "are not unfrequently domesticated in Wermeland. I heard of one that was so tame, that his master, a peasant, used occasionally to cause him to stand at the

back of his sledge when on a journey ; but the fellow kept so good a balance, that it was next to impossible to upset him. When the vehicle went on one side, Bruin threw his weight the other way, and *vice versa*. One day, however, the peasant amused himself by driving over the very worst ground he could find, with the intention, if possible, of throwing the bear off his equilibrium, by which, at last, the animal got so irritated, that he fetched his master, who was in advance of him, a tremendous thwack on the shoulders with his paw. This frightened the man so much, that he caused the beast to be killed immediately."

Of the ferocity of the bear there are many instances on record. A brown bear, which was presented to his late Majesty, George the Third, while Prince of Wales, was kept in the Tower. By the carelessness of the servant, the door of the den was left open ; and the keeper's wife happening to go across the court at the same time, the animal flew out, seized the woman, threw her down, and fastened upon her neck, which he bit ; and without offering any farther violence, lay upon her, sucking the blood out of the wound. Resistance was in vain, as it only served to irritate the brute ; and she must inevitably have perished, had not her husband luckily discovered her situation. By a sudden blow, he obliged the bear to quit his hold, and retire to his den, which he did, with great reluctance, and not without making a second attempt to come at the woman, who was almost dead, through fear and loss of blood. It is somewhat remarkable, that, whenever he happened to see her afterwards, he growled, and made most violent struggles to get at her. The Prince, upon hearing of the circumstance, ordered the bear to be killed.

But the bear is also capable of generous attachment. Leopold, Duke of Lorraine, had a bear called Marco, of the sagacity and sensibility of which we have the following remarkable instance : During the winter of 1709, a Savoyard boy, ready to perish with cold in a barn, in which he had been put by a good woman, with some more of his companions, thought proper to enter Marco's hut, without reflecting on the danger which he ran in exposing himself to the mercy of the animal which occupied it. Marco, however, instead of doing any injury to the child, took him between his paws, and warmed him, by pressing him to his breast until next morning, when he suffered him to

depart to ramble about the city. The young Savoyard returned in the evening to the hut, and was received with the same affection. For several days he had no other retreat ; and it added not a little to his joy, to perceive that the bear regularly reserved part of his food for him. A number of days passed in this manner without the servants knowing any thing of the circumstance. At length, when one of them came one day to bring the bear its supper, rather later than ordinary, he was astonished to see the animal roll his eyes in a furious manner, and seeming as if he wished him to make as little noise as possible, for fear of awaking the child, whom he clasped to his breast. The bear, though ravenous, did not appear the least moved with the food which was placed before him. The report of this extraordinary circumstance was soon spread at court, and reached the ears of Leopold, who, with part of his courtiers, was desirous of being satisfied of the truth of Marco's generosity. Several of them passed the night near his hut, and beheld, with astonishment, that the bear never stirred as long as his guest showed an inclination to sleep. At break of day, the child awoke, was very much ashamed to find himself discovered, and, fearing that he would be punished for his temerity, begged pardon. The bear, however, caressed him, and endeavoured to prevail on him to eat what had been brought to him the evening before, which he did at the request of the spectators, who afterwards conducted him to the prince. Having learned the whole history of this singular alliance, and the time which it had continued, Leopold ordered care to be taken of the little Savoyard, who, doubtless, would have soon made his fortune, had he not died a short time after.

Munster relates the following story of a man being relieved from a perilous situation by a bear : A countryman in Muscovy, in seeking for honey in the woods, mounted a stupendous tree, which was hollow in the centre of its trunk ; and, discovering that it contained a large quantity of comb, descended into the hollow, where he stuck fast in the honey, which had been accumulated there to a great depth ; and every effort on his part to extricate himself proved abortive. And so remote was this tree, that it was impossible his voice could be heard. After remaining in this situation for two days, and allaying his hunger with the honey, all hope of being extricated was abandoned, and he

gave himself up to despair ; when a bear, who, like himself, was in search of honey, mounted the tree, and descended the hollow cleft, 'stern forward.' The man was at first alarmed, but mustered courage to seize the bear, with all the firmness he could ; upon which the animal took fright, made a speedy retreat, and dragged the peasant after it. When fairly out of the recess, he quitted his hold, and the bear made the best of its way to the ground, and escaped.

Captains Lewis and Clarke, in their travels to the source of the Missouri, give the following striking instance of the astonishing physical powers of the bear, which proves that he is a formidable enemy to encounter : " One evening, the men in the hindmost of the canoes, discovered a large brown bear lying in the open grounds, about three hundred paces from the river. Six of them, all good hunters, set out to attack him ; and, concealing themselves by a small eminence, came unperceived within forty paces of him. Four of them now fired, and each lodged a ball in his body, two of them directly through the lungs. The enraged animal sprang up, and ran open mouthed at them. As he came near, the two hunters who had reserved their fire, gave him two wounds, one of which, breaking his shoulder, retarded his motion for a moment ; but, before they could reload, he was so near, that they were obliged to run to the river, and, when they reached it, he had almost overtaken them. Two jumped into the canoe ; the other four separated, and, concealing themselves in the willows, fired as fast as each could load. They struck him several times, which only exasperated him ; and he at last pursued two of them so closely, that they leaped down a perpendicular bank of twenty feet into the river. The bear sprang after them, and was within a few feet of the hindmost, when one of the hunters from the shore shot him in the head, and killed him. They dragged him to the banks of the river, and found that eight balls had passed through his body."

Captain Lewis, having met a large herd of buffaloes, fired at one ; and while he was watching to see him drop, had neglected to reload his rifle, and, looking about, saw a large brown bear stealing upon him, and already within twenty steps. In this state, he saw there was no safety but in flight. It was an open plain, not a bush nor a tree within three hundred yards, the bank of the river sloping, and not more than three feet high.

He therefore thought of retreating at a quick walk towards the nearest tree ; but, as soon as he turned, the bear ran at him full speed. It then shot across his mind, that, if he ran into the water, to such a depth that the bear would be obliged to attack him swimming, there was still some chance of his life. He therefore turned short, plunged into the river about waist deep, and facing about, presented the point of his esponton. The bear arrived at the water's edge ; but when he saw Captain Lewis in a posture of defence, he seemed frightened, and, wheeling round, retreated with as much precipitation as he had advanced. He ran till he reached the woods, looking back now and then, as if he expected to be pursued.

THE GREENLAND, WHITE, OR POLAR BEAR.

THE polar bear is, as we said, larger considerably than the brown or black bear, and is covered with a long thick fur, of a bright white beneath, and of a yellowish tinge above. Besides the difference in external appearance, there is a remarkable distinction between the brown and the polar bears ; for the former prefers, as his abode, the wooded summits of Alpine regions, feeding principally on roots and vegetables ; while the latter fixes his residence on the sea coast, or on an iceberg, and seems to delight in the stormy and inhospitable precincts of the Arctic circle, where vegetation is scarcely known to exist, feeding entirely on animal matter. But it cannot be regarded as a predatory quadruped, for it seems to prefer dead to living animal food, its principal subsistence being the floating carcasses of whales. It also preys upon seals, which it catches with much keenness and certainty as they ascend to the surface of the ocean to breathe : and sometimes fish are caught by them, when they enter shoals or gulfs. They move with great dexterity in the water, and capture their prey with apparent ease. It is only when these bears quit their winter quarters, and especially when the female has to protect her young, that they manifest great ferocity.

While the Carcass, one of the ships of Captain Phipps's voyage of discovery to the North Pole, was locked in the ice,

early one morning the man at the mast head gave notice, that three bears were making their way very fast over the frozen ocean, and were directing their course towards the ship. They had no doubt been invited by the scent of some blubber of a sea horse, which the crew had killed a few days before, and which, having been set on fire, was burning on the ice at the time of their approach. They proved to be a she bear and her two cubs; but the cubs were nearly as large as the dam. They ran eagerly to the fire, and drew out from the flames part of the flesh of the sea horse that remained unconsumed, and ate it voraciously. The crew of the ship threw great lumps of the flesh they had still left upon the ice, which the old bear fetched away singly, laying every piece before the cubs as she brought it, and, dividing it, gave each a share, reserving but a small portion to herself. As she was fetching away the last piece, they levelled their muskets at the cubs, and shot them both dead, at the same time wounding the dam in her retreat, but not mortally. It would have drawn tears of pity from any but the most unfeeling, to have marked the affectionate concern expressed by this poor animal, in the dying moments of her expiring young. Though she was sorely wounded, and could but just crawl to the place where they lay, she carried the lump of flesh she had just fetched away, as she had done the others, tore it in pieces, and laid it down before them. When she saw they refused to eat, she laid her paws first upon the one, then upon the other, and endeavoured to raise them up, making, at the same time, the most pitiable moans. Finding she could not stir them, she went off, and, when she had got to some distance, looked back, and moaned; and that not availing to entice them away, she returned, and, smelling round them, began to lick their wounds. She went off a second time, as before, and having crawled a few paces, looked again behind her, and for some time stood moaning. But still, her cubs not rising to follow, she returning to them anew, and, with signs of inexpressible fondness, went round, pawing them successively. Finding, at last, that they were cold and lifeless, she raised her head towards the ship, and growled a curse upon the destroyers, which they returned with a volley of musket balls. She fell between her cubs, and died licking their wounds.

The polar bears are remarkably sagacious, as the following

instances may prove. Those in Kamtschatka are said to have recourse to a singular stratagem, in order to catch the bareins, which are much too swift of foot for them. These animals keep together in large herds; they frequent mostly the low grounds, and love to browse at the base of rocks and precipices. The bear hunts them by scent, till he comes in sight, when he advances warily, keeping above them, and concealing himself among the rocks, as he makes his approach, till he gets immediately over them, and near enough for his purpose. He then begins to push down, with his paws, pieces of rock among the herd below. This manœuvre is not followed by any attempt to pursue, until he finds he has maimed one of the flock, upon which a course immediately ensues, that proves successful, or otherwise, according to the hurt the barein has received.

The captain of a Greenland whaler, being anxious to procure a bear without injuring the skin, made trial of a stratagem of laying the noose of a rope in the snow, and placing a piece of kreng within it. A bear, ranging the neighbouring ice, was soon enticed to the spot by the smell of burning meat. He perceived the bait, approached, and seized it in his mouth; but his foot, at the same time, by a jerk of the rope, being entangled in the noose, he pushed it off with his paw, and deliberately retired. After having eaten the piece he had carried away with him, he returned. The noose, with another piece of kreng, having been replaced, he pushed the rope aside, and again walked triumphantly off with the bait. A third time the noose was laid; but, excited to caution by the evident observations of the bear, the sailors buried the rope beneath the snow, and laid the bait in a deep hole dug in the centre. The animal once more approached, and the sailors were assured of their success. But Bruin, more sagacious than they expected, after snuffing about the place for a few moments, scraped the snow away with his paw, threw the rope aside, and again escaped unhurt with his prize.

A Greenland bear, with two cubs under her protection, was pursued across a field of ice by a party of armed sailors. At first, she seemed to urge the young ones to an increase of speed, by running before them, turning round, and manifesting, by a peculiar action and voice, her anxiety for their progress; but,

finding her pursuers gaining upon them, she carried, or pushed, or pitched them alternately forward, until she effected their escape. In throwing them before her, the little creatures are said to have placed themselves across her path to receive the impulse, and, when projected some yards in advance, they ran onwards, until she overtook them, when they alternately adjusted themselves for another throw.

In the month of June, 1812, a female bear, with two cubs, approached near a whale ship, and was shot. The cubs, not attempting to escape, were taken alive. These animals, though at first very unhappy, became at length, in some measure, reconciled to their situation, and, being tolerably tame, were allowed occasionally to go at large about the deck. While the ship was moored to a floe, a few days after they were taken, one of them, having a rope fastened round his neck, was thrown overboard. It immediately swam to the ice, got upon it, and attempted to escape. Finding itself, however, detained by the rope, it endeavoured to disengage itself in the following ingenious way: Near the edge of the floe was a crack in the ice, of considerable length, but only eighteen inches or two feet wide, and three or four feet deep. To this spot the bear turned, and when, on crossing the chasm, the bight of the rope fell into it, he placed himself across the opening; then, suspending himself by his hind feet, with a leg on each side, he dropped his head and most part of his body into the chasm, and, with a foot applied to each side of the neck, attempted, for some minutes, to push the rope over his head. Finding this scheme ineffectual, he removed to the main ice, and, running with great impetuosity from the ship, gave a remarkable pull on the rope; then, going backwards a few steps, he repeated the jerk. At length, after repeated attempts to escape this way, every failure of which he announced by a significant growl, he yielded himself to hard necessity, and lay down on the ice in angry and sullen silence.

Like the brown and black bear, polar bears are animals capable of great fierceness. Brentz, in his voyage in search of the north-east passage to China, had horrid proofs of their ferocity in the island of Nova Zembla, where they attacked his seamen, seizing them in their mouth, carrying them off with the utmost ease, and devouring them even in sight of their comrades.

About twenty years ago, the crew of a boat belonging to a

ship in the whale fishery, shot at a bear some little distance off, and wounded him. The animal immediately set up a dreadful howl, and scampered along the ice towards the boat. Before he reached it, he had received a second wound. This increased his fury, and he presently plunged into the water, and swam to the boat; and, in his attempt to board it, he placed one of his fore paws upon the gunwale, and would have gained his point, had not one of the sailors seized a hatchet and cut it off. Even this had not the effect of damping his courage, for he followed the boat till it reached the ship, from whence several shots were fired at him, which hit, but did not mortally wound him: he approached the vessel, and ascended the deck, where, from his dreadful fury, he spread such consternation, that all the crew fled to the shrouds, and he was in the act of pursuing them thither, when an effective shot laid him dead on the deck.

THE BADGER.

LIKE the bear, the badger, in walking, treads on his heels; and, being short in the legs, his belly nearly touches the ground. The principal food of the badger is roots, fruits, grass, insects, and frogs. They live in pairs, and sleep during day in their burrow, which is always formed in some sequestered place.

The skin of the badger is dressed with the hair on, and manufactured into pistol cases. Its flesh is eaten, and the hind quarters frequently converted into hams, which some consider superior in their flavour to bacon.

Few creatures, when captured by man, are subjected to such cruel and barbarous treatment, for it is kept only to be baited by dogs. In this savage sport, the unfortunate brute is sometimes tormented and torn from morning to night. Humanity shudders at such cruelty; and it is only to be wondered, that in the present enlightened age, there are to be met with men brutal enough to take pleasure in such sport, and that the laws should permit it. With a harmless nature, few animals can defend themselves with such obstinacy, or inflict keener wounds on their adversaries; and it is only a dog of great courage and strength that can draw one from its hole. The thickness of its skin, which is loose, enables it easily to turn round upon its assailants, and wound them in the tenderest parts. In this manner, being singularly endowed by nature, this animal is able to resist repeated attacks, both of men and dogs, from all quarters, till, being overpowered with numbers, and enfeebled by wounds, it is at last obliged to submit.

The following instance of extraordinary affection in a badger was related by a gentleman residing at Chateau de Vernours:—Two persons were on a journey, and passing through a hollow

way, a dog, which was with them, started a badger, which he attacked, and pursued till he took shelter in a burrow under a tree. With some pains he was hunted out, and killed. Being a few miles from a village, called Chapellatiere, they agreed to drag him thither, as the commune gave a reward for every one which was destroyed; besides, they proposed selling the skin, as badgers' hair furnishes excellent brushes for painters. Not having a rope, they twisted some twigs, and drew him along the road by turns. They had not proceeded far, when they heard the cry of an animal in seeming distress, and stopped to listen whence it proceeded, when another badger approached them slowly. They at first threw stones at it; notwithstanding which, it drew near, came up to the dead animal, began to lick it, and continued its mournful cry. The men, surprised at this, desisted from offering any further injury to it, and again drew the dead one along as before; when the living badger, determined not to quit its dead companion, lay down on it, taking it gently by one ear, and in that manner was drawn into the midst of the village; nor could dogs, boys, or men induce it to quit its situation by any means; and, to their shame be it said, they had the inhumanity to kill the poor animal, and afterwards to burn it, declaring it could be no other than a witch.

THE RACCOON.

The racoon approximates, in physical characters, to the bears, but is much smaller and more elegantly formed. He is an active and lively animal; an excellent climber of trees, in which the sharpness of his claws greatly aids him; and he will even venture to the extremity of slender branches. He is a good tempered animal, and, consequently, easily tamed; but his habit of prying into every thing renders him rather troublesome, for he is in constant motion, and examining every object within his reach. He generally sits on his hinder parts when feeding, conveying all his food to his mouth with his fore paws. He will eat almost every kind of food, but is particularly fond of sweetmeats, and will indulge in spirituous liquors even to

drunkenness. He feeds chiefly at night, in a wild state, and sleeps during the day.

The fur of the racoon is much valued by hatters, being next, in fineness, to that of the beaver; it is also used as linings to dresses; gloves, and even the upper leather of shoes, are made from its skin when dressed. Its flesh is considered a delicacy by the negroes of some of the West India Islands. It is principally to be found in North America.

Brickell gives an interesting account, in his 'History of North Carolina,' of the wonderful cunning manifested by the racoon in that country. It is fond of crabs, and, when in quest of them, will take its station by a swamp, and hang its tail over into the water, which the crabs mistake for food, and lay hold of it; as soon as the racoon feels them pinch, he pulls up his tail with a sudden jerk, and they generally quit their hold upon being removed from the water. The racoon instantly seizes the crabs in his mouth, removes them to a distance from the water, and greedily devours his prey. He is very careful how he takes them up, which he always does from behind, holding them transversely, in order to prevent them catching his mouth with their nippers.

ANECDOTES OF BIRDS.

WE have now reached a beautiful class of the animal creation, in which most people take an untiring interest. Analogy would lead us to suppose that those birds which we meet with in every rural walk, and with whose appearance we are perfectly familiar, would ultimately cease to be the objects of any particular interest to us—but experience proves that this is not the case. The redbreast, which, year after year, has come in the autumn evenings to sing his plaintive song in our gardens, is still heard and contemplated, as if he were some mysterious creature, who had never visited us before. We fear lest any alien sound may occur to interrupt his music, and scare him away. Even the crow, as he floats along, has “his tribute of eyes,” and we find the charm of novelty in that most monotonous of all birds, the house-sparrow,

Perhaps it is because birds, more than any other animals, have the means of shunning our approach, that our interest in them is so permanent. The difficulty of coming near enough to obtain a distinct view, even of such as keep perpetually in our neighbourhood, enhances the pleasure. The very tamest of them are as tenacious of their liberty, as those which have their haunts in the deepest solitudes. They all alike shun contact with man—and all of them are more or less the objects of his permanent curiosity.

We may therefore say, that the department of “animated nature” which we are now entering upon, is more calculated than any other to interest the sympathies of readers in general. The winged tribes are associated in the mind with all that is romantic and beautiful in scenery. Their mysterious emigrations, at

stated seasons, from land to land,—their foresight of calm and storm,—their melody or their beauty, and that wonderful construction by which some of them are alike fitted for land and air, and others for swimming also :—these give them a variety of interest, which attaches to no other tribe of the animal creation. In our recollections of any rural scene, which we have visited, are not its winged inhabitants inevitably included? Our summer walks through the dim woodland, owed much of their charm to the music of the blackbird—the thrush and the linnet—and the deep-toned cooing of the dove, far away amid the vaulted umbrage. The sublimity of the ocean was enhanced by the free sweep of its wide-pinioned fowl—the mountain-top looked still more lofty, when the eagle skimmed around it,—the ancient tower seemed more magnificent in its decay, when the rooks hovered over it,—the lonely moor was yet lonelier for the curlew's voice that deprecated the intrusion of man.

It perhaps may be questioned, whether writers on the subject are correct in placing birds, without exception, beneath quadrupeds in the scale of intelligence. That they rank above insects and fishes, can admit of no dispute, and when we take into account the ingenuity which they display, in constructing their nests, in choosing the securest places for them, and in adapting the form and situation of these to accidental circumstances,—as the swallow often does, and as the crow, and many others have been known to do, (as we shall afterwards have occasion to state particularly) :—when we consider also the sagacious means which they use for the protection of their young; their susceptibility of being taught; when we consider all this, we shall probably be at a loss for even equal proofs of sagacity among what are termed the superior animals. Water-fowl are proverbially low in the scale of birds, and yet even they are known to keep watch by turns, for mutual protection against an enemy, and they can be taught to employ, in behalf of man, that dexterity which enables them to seize the swift-gliding fish. The decoy-duck is a familiar instance to our present purpose, and there are many others, hereafter to be mentioned in detail.

Altogether, if we except the elephant, the horse, the dog, and a few others, a comparison might easily be instituted between the remaining mammalia and the subjects of our present consideration, to the advantage of the latter. Their conjugal fidelity, their attach-

ment to their young, added to the sagacity which they exhibit in so many respects, entitle them, we think, to this superiority.

It has been urged on the other hand, that the comparative insagacity of birds is proved by the fact, that those found in situations never before intruded upon by man, allow themselves to be taken without using any means for escape; but surely this only results from the same inexperience, which leads powerful wild beasts in similar circumstances, to meet indiscriminately, whatever force may be opposed to them. It is only experience of man's capabilities, that teaches them the limits of their own.

Agreeably to the arrangement pursued by Dr Goldsmith, we begin with the first of the following birds, which, from their great size, and their inability to fly, "do not well range in any system," viz. the Ostrich, the Cassowary, the Emu, the Dodo, and the Solitaire.

THE OSTRICH.

This largest of all the bird tribe is seldom to be met with, excepting in the burning deserts of Africa, and it is peculiar to that continent. It is chiefly valued for its feathers, which have long made its name popular among the ladies of Europe. The extreme stupidity ascribed to it by the old travellers, has been considerably modified by their successors. It is not true, for example, that the ostrich buries its eggs in the sand, and leaves them to the influence of the sun, and that, unlike all other animals, it takes no charge of its progeny. A particular refutation of these errors, and a description of the ostrich, will be found in the new edition of Goldsmith. What is there stated of its sagacity in detecting at once, on its return, if the eggs have been touched by any person during its absence,—and its consequent abandonment of the nest, renders unlikely also the accounts which state, that when overtaken by the hunters, the ostrich plunges its head into the sand, or into a thicket, thinking its whole body will be thus concealed from view. At the same time, we must admit, that its bulk and sagacity are in strong contrast with each other. In the dreary localities which it in-

habits, its food is every where found in undisputed profusion—for there, nothing comes amiss to it—and its mental faculties are limited accordingly,—while its amazing swiftness of foot enables it easily to pass beyond the horizon to elude an enemy, while the whole compass of the desert is its home.

The following anecdotes will illustrate the conjugal affection of the ostrich ; its indiscriminate use of articles as food ; and its attachment to its young :

In the year 1822, there were two remarkably fine ostriches, male and female, kept in the Rotunda of the Jardin du Roi at Paris. The skylight over their heads having been broken, the glaziers proceeded to repair it, and, in the course of their work, let fall a triangular piece of glass. Not long after this, the female ostrich was taken ill, and died after an hour or two of great agony. The body was opened, and the throat and stomach were found to have been dreadfully lacerated by the sharp corners of the glass which she had swallowed. From the moment his companion was taken from him, the male bird had no rest ; he appeared to be incessantly searching for something, and daily wasted away. He was removed from the spot, in the hope that he would forget his grief ; he was even allowed more liberty, but nought availed, and he literally pined himself to death.

Professor Thunberg relates, that as he passed on horseback, near the spot where a female ostrich was sitting upon her nest, she rushed out and pursued him for a considerable time, evidently for the purpose of preventing him from seeing where it was situated.

The EMU is next in size to the preceding bird, and is by some naturalists termed the American ostrich. Others state that it is a native of New Holland only,—and that the mistake arises from confounding it with the Rhea of South America. The body of the Emu is in colour a grayish brown, and its neck and head are sprinkled with thin black feathers.

Mr Jesse says, “ The only instance I have met with on which the hen bird has not the chief care in hatching and bringing up the young, is in the case of the Emus, at the farm belonging to the Zoological Society, near Kingston. A pair of these birds have now five young ones : the female, at different times, dropped nine eggs in various places in the pen in which she was confined. These were collected in one place by the male, who rolled them gently and carefully along with his beak. He then sat upon

them himself, and continued to do so with the utmost assiduity, for nine weeks, during which time the female never took his place, nor was he ever observed to leave the nest. When the young were hatched, he alone took charge of them, and has continued to do so ever since, the female not appearing to notice them in any way. On reading this anecdote, many persons would suppose that the female emu was not possessed of that natural affection for its young which other birds have. In order to rescue it from this supposition, I will mention that a female emu belonging to the Duke of Devonshire at Chiswick, lately laid some eggs; and as there was no male bird, she collected them together herself, and sat upon them."

The CASSOWARY is found in southern Asia, and bears a general resemblance to the emu, though in many respects it is different. It has a horny substance over the forepart of its head, and wattles upon the neck.

This bird consumes an immense quantity of food,—and has been observed when tame, and in confinement, to manifest singular antipathies. One in Paris could not endure the sight of persons in rags, or in red clothes. When any such appeared, the cassowary kicked like a man, and with a vigour which would have enabled it to imprint some lasting remembrances on the body and mind of the object of its resentment, had the cage bars permitted them to come together.

The DODO, now extinct, is said to have been peculiar to the Isle of France. Some writers are doubtful whether it ever existed. The accounts of it, both as respects its flesh and figure and habits, are such as to render their doubts of little importance. A large and unwieldy body, whose motions resembled in speed those of the tortoise,—flesh of very questionable character,—and the *cognomen* of *Walyvogel*, or *Bird of disgust*, which was bestowed upon it by its Dutch discoverers,—constitute its claims upon the interest of the reader.

The SOLITAIRE is merely named by Goldsmith in his enumeration of unclassifiable birds,—and we have met with nothing elsewhere regarding it, which would come expressly under the plan of the present work. Our recollection does not enable us to give the external characteristics of the solitaire—but this is immaterial for the reason now mentioned.

OF RAPACIOUS BIRDS.

THESE make deadly war against all the rest of the feathered creation, and every other animal whom they are able to overcome. Sometimes their motive for so doing is vindictive, but the standing cause is, that they must have animal food, if it can by any means be obtained. A few of them, indeed, prefer what they find already dead,—yet as all of them are very accommodating and versatile in their habits, the peaceful birds have long been of opinion that they are not much to be trusted,—and accordingly keep at a safe distance from them, as often as they can. We shall find, as we proceed, that the largest of the rapacious birds owe their reputation for courage, mainly to their great size and strength. They are uniformly observed to avoid even an equal combat, and are cautious how they provoke some of the smaller of their own species. The latter, on the other hand, seem to have courage in the inverse ratio of their bulk, and wont put up with insults from the largest creature that ever wore wings.

Rapacious birds are comprehended, under the five following kinds, viz. the Eagle, Hawk, Vulture, and Horned and Screech Owl kinds, which we now proceed to treat of respectively, following the arrangement of Goldsmith.

THE EAGLE AND ITS CONGENERS.

The Golden Eagle ranks first for size and strength. From the extremities of tail and beak, it has been found to measure

nearly four feet. Its body is of a dark colour, sprinkled with spots of a livelier shade. Like other predatory birds, it makes its dwelling in rocks, and other lonely elevations. As their habits and characteristics are nearly the same, we shall just give the following list of the eagle kind,—and afterwards notice particularly such of them as we happen to possess any entertaining information respecting:—the ring-tailed eagle, (now known to be the young of the golden eagle, though mentioned by Goldsmith as distinct from it,) the common eagle, the bald eagle, the white eagle, the rough-footed eagle, the erne, the black eagle, the osprey, the sea eagle, the crowned eagle, &c.—

There was a young Golden Eagle kept for some time, at Thrampton Hall, the seat of J. E. Westcombe, Esq. It was very fierce, and in fine feather. Having obtained its liberty, it flew to a gate, some distance from its place of confinement, where a public path came through. A foot passenger, who was a stranger to the place, and consequently unacquainted with the bird, wishing to pass through, the bird seemed determined to dispute the passage, and offered battle; the man, in self-defence, struck the bird over the crown, and caused almost immediate death, by fracturing the skull.

Of the *Golden Eagle*, which is diffused over all Europe and North America, many curious stories have been told. It is very often to be met with in the Highlands, and Western isles of Scotland. The following romantic lines of Thomson refer to it in the latter situation.

“ High from the summit of a craggy cliff,
Hung o'er the deep, such as amazing frowns
On utmost Kilda's shore, whose lonely race
Resign the setting sun to Indian worlds,
The royal eagle draws his vigorous young,
Strong pounc'd and ardent with paternal fire.
Now fit to raise a kingdom of their own,
He drives them from his fort, the towering seat,
For ages, of his empire; which, in peace,
Unstain'd he holds, while many a league to sea
He wings his course, and preys in distant isles.”

The Golden Eagle is brown, terminating in a reddish colour at the neck and head;—the feathers of the tail are deep brown,

dotted with ash-colour, and white at the roots,—the legs feathered with brown.

A lad, named Macdougall, who at present resides near the village of Oban in Argyleshire, went out very early one morning to shoot rock pigeons, accompanied by a dog of the terrier breed. As he stood watching the pigeons, an eagle came floating over the brow of the precipice. Macdougall took aim, and the bird fell to the ground with a broken wing. He attempted to master it with his hands, but got them dreadfully lacerated, and was obliged to desist. He next set his dog upon it, which, though well accustomed to fight with badgers and otters, found that they were weak foes compared to the eagle, and ran yelping away from the first clutch. Had Macdougall not been desirous of preserving the eagle alive, he would at once have employed the butt end of his gun, and this he was at last compelled to do, though the eagle was not killed till it had received about a dozen heavy blows. He described it as having legs as thick as his wrist, but this was evidently an exaggeration.

A party of New Galloway gentlemen, who had gone on a fishing expedition to Loch Dungeon, were witness to a fierce combat between two eagles and a large otter. One of the eagles hovering over the lake, descried an otter sleeping on the sunny side of a bank near the water's edge, and pounced upon it. Thus attacked, the otter soon stood on the alert, and prepared to give the eagle battle, when another eagle appeared, and joined in the attack. The unfortunate otter, finding himself assailed behind and before, immediately retreated to his favourite element. On reaching the water, the otter attempted to dive, but was powerfully held by one of the eagles, whose talons had been partly fixed in his skin, which made him redouble his exertions for life and liberty. In this way, the combat was long and amusing, till the eagle, finding his claws fairly disengaged, and little used to combat on such an element, precipitately beat a retreat, and retired with his companion to his native mountains.

We give the following anecdote of the eagle from the Edinburgh Literary Gazette: "Of the many absurd stories told of eagles, this, by Von Buch, is not the least remarkable. We learned, says he, with astonishment, that eagles were very much dreaded in these islands; for they are not contented with lambs

and smaller animals, but even attack oxen, and not unfrequently master them. The manner of their attack is so singular, that we should have doubted the truth of the account, if we had not heard it so circumstantially and distinctly confirmed to us, in the same terms, at places a great distance from each other. The eagle plunges itself into the waves, and after being completely drenched, rolls itself among the sand on the shore, till its wings are quite covered with sand. It then rises into the air, and hovers over its unfortunate victim, and when close to it, shakes its wings, and throws stones and sand into the eyes of the ox, and completes the terror of the animal by blows with its powerful wings. The blinded oxen run about quite raving, and at length fall down completely exhausted, or dash themselves to death from some cliff. The eagle then mangles, undisturbed, the fruits of his victory.—If this tale be true, the Norwegian eagles must be very different from ours, in respect to courage and sagacity ; for the British eagles are so cowardly, that they do not even venture to defend their nests against a solitary rocksman, dangling upon a rope, like a spider upon its thread. As to eagles plunging into the waves with the view of getting drenched, we are very certain they would be very sorry to play such pranks, for every body knows, that for a drenched bird it is as impossible to fly, as for a drunk man to thread a needle.” The osprey is indeed often wholly submersed, but then, its feathers are of the same close texture with those of a duck, or any other waterfowl, and do not retain, if in truth, from their oiliness they even may be said to receive, a wetting. The tale seems to be an exaggeration of what is told of the condor, in the notes to Goldsmith. Guillin, in his display of Heraldry, the book mentioned by Sir Walter Scott, as being the Sabbath-day amusement of the old knight Osbaldiston, in *Rob Roy*, thus quaintly introduces an ancient anecdote of the eagle :—“ Though the eagle’s strength,” says he, “ be much in her leggs and beak, yet sometimes she is for to use her wit to rend her prey ; as especially she doth in breaking open all shell-fish, which she useth (as Fortune doth many great men) to carry them up very high, that they might fall with greater force, and so be broken up for her food. Whereof there is recorded one memorable, but pitifull experiment on the Poet *Æschylus*, who, sitting in deep meditation, an eagle thinking his bald head had been a

stone, let fall a tortoise upon it, and so made a tragical end of that noble tragedian."

Among the ruins of Dunolly castle, Argyleshire, there has been confined for many years, a fine eagle, said to be an osprey. If so, it seems quite contented with dry land, and the food to be had there.

"I was particularly amused," says Mr Drosier, "one evening, when standing at the foot of the loftiest hill in Orkney, (called by the natives Snuge,) with the following circumstance :— An eagle was returning to his eyry, situated in the face of the western crags, in appearance perfectly unconscious of approaching so near to his inveterate foes; as, in general, the eagle returns to the rocks from the sea, without even crossing the smallest portion of the island. This time, however, he was making a short cut of it, by crossing an angle of the land. Not a bird was discernible: a solitary squa gull might, indeed, be occasionally seen, wheeling his circling flight round the summit of the mountain, which was already assuming its misty mantle. As I was intently observing the majestic flight of the eagle, on a sudden he altered his direction, and descending hurriedly, as if in the act of pouncing, in a moment, five or six of the squa gulls passed over my head with an astonishing rapidity; their wings partly closed and perfectly steady, without the slightest waver or irregularity. They appeared, when cleaving the air, like small fragments of broken rock, torn and tossed by a hurricane from the summit of a towering cliff, until losing the power that supported them, they fell prone to the sea beneath. The gulls soon came up with him, as their descent was very rapid, and a desperate engagement ensued. The short bark of the eagle was clearly discernible above the scarcely distinguished cry of the squa, who never ventured to attack his enemy in front; but, taking a short circle around him, until his head and tail were in a direct line, the gull made a desperate sweep or stoop, and, striking the eagle on the back, he darted up again almost perpendicularly; when, falling into the rear, he resumed his cowardly attack. Three or four of these birds, thus passing in quick succession, invariably succeeded in harassing the eagle most unmercifully. If, however, he turns his head previously to the bird's striking, the gull quickly ascends without touching him. This engagement continued some time, the eagle wheeling and

turning as quickly as his ponderous wings would allow; until I lost the combatants in the rocks. As soon as this is the case, the gulls leave and quickly return to the mountain."

In the year 1827, as two boys, the one seven and the other five years old, were amusing themselves in a field, in trying to reap during the time that their parents were at dinner, in the parish of St Ambrose, at New York, a large eagle came sailing over them, and with a swoop, attempted to seize the eldest, but luckily missed him. The bird, not at all dismayed, sat on the ground at a short distance, and in a few moments repeated the attempt. The bold little fellow defended himself with the sickle in his hand, and when the bird rushed upon him, he struck it. The sickle entered under the left wing, went through the ribs, and penetrating the liver, instantly proved fatal. It turned out to be the Ring-tailed eagle, and measured from the tip of one wing to that of the other upwards of six feet. Its stomach was opened, and found to be entirely empty. The little boy did not receive a scratch.

Pliny relates that there was a wonderful example of the affection of an eagle, at the city of Sestos; upon which account that bird became afterwards much honoured in the neighbouring country. A young girl had brought up an eagle by hand. In return for this kindness, the bird would go in quest of prey, and always returned with part of what it had procured to its nurse, to whom the eagle was devotedly attached. When the eagle grew stronger, she extended her depredations to wild beasts of the forest, and continually provided her mistress with store of venison. At length the young woman took ill and died, and when her funeral pile was burning, the eagle flew into the midst of it, and there was consumed to ashes with the corpse of the virgin. In memorial of this extraordinary event, the inhabitants of Sestos erected on the spot a stately monument, which they call Hero-um, because the eagle is a bird consecrated to God.

Several instances have been recorded of children being seized and carried off by eagles to their young. In the year 1737, in the parish of Norderhouss, in Norway, a boy, somewhat more than two years old, was running from the house to his parents, who were at work in the fields at no great distance, when an eagle pounced upon and flew off with him in their sight. It was with inexpressible grief and anguish, that they beheld their

child dragged away, but their screams and efforts were in vain.

Anderson, in his History of Iceland, says, that in that Island, children of four or five years of age have been sometimes taken away by eagles; and Ray relates, that in one of the Orkneys, a child of a year old was seized in the talons of an eagle, and carried about four miles to its nest. The mother knowing the place where it built, pursued the bird, found her child in the eyry, and took it away unhurt.

A very formidable bird of the eagle kind remains to be mentioned, but as it is very well known, we shall dismiss it with one anecdote, the only unappropriated one within our reach at present.—The *Lammer-geyer*, or Lamb Vulture, so called from its devouring that animal, and also known by the name of the Bearded Eagle, is the largest of the birds of prey, after the condor of America, measuring sixteen feet across when the wings are extended. It frequents the north of Switzerland, and sometimes carries off young kids, and even sheep and dogs. M. Ebel relates a story of a chasseur of that country, (Joseph Schoren,) who having discovered a nest belonging to one of these terrible birds, and having killed the male, crept along the jut of a rock, his feet bare, the better to keep himself firm, in hopes of catching the young ones. He raised his arm, and had already his hand upon the nest, when the female, pouncing on him from above, struck her talons through his arm, and her beak into his loins. The hunter, whom the smallest movement would have precipitated to the bottom, lost not his presence of mind, but remained firm, rested his fowling piece, which fortunately he held in his left hand, against the rock, and with his foot directing it full on the bird, touched the trigger, and she fell dead. The wounds which he had received confined him for several months. These hunters are men, of whom the savages of America might learn lessons of patience and courage in the midst of danger and privations. The greater part of them come to a tragical end. They disappear, and their disfigured remains, which are now and then found, alone intimate their fate.

THE CONDOR OF AMERICA.

THE notes to Goldsmith have anticipated us in all that is worth recording of this native of the Andes, whose character and exploits have been a good deal magnified. When strangers visit a wild country, they are prepared for the marvellous, and the natives are always sure to minister it in liberal dozes. We generally find that a Highlander suits his story to his auditor, and according to the wonder excited, so is the supply. The narrator partakes of the feeling to which he gives rise, and forsakes unconsciously the truth for the poetry of his subject. Such has been the fate of most local inquiries about the condor. Travelers have received implicitly the heightened and almost superstitious native accounts of this bird—and either had not opportunity or wish to compare them with nature. It is now ascertained not to exceed in size the *Vulture barbatus*, or Lammergeyer, for which it has been sometimes mistaken.—It is exceedingly bold, and will attack the puma, and even the bullock and cow; which it does by hovering over, and pecking them on the back, sometimes tiring them to death, and then devouring them.

OF THE VULTURE AND ITS CONGENERS.

THE Vulture tribe all agree in their habits and nature; rapacity, laziness, and an odour which suggests the idea of living corpses. The bare head too, so often thrust into corrupted bodies, completes the disgusting associations with which this odious creature is contemplated. Notwithstanding, the vulture has its place and use among the creatures of Providence. In Grand Cairo, and elsewhere, they have had the freedom of the town conferred upon them, and make such useful citizens, that to meddle with them is punishable by law. They are employed like scavengers—but they swallow as well as remove, the offals from the streets, and so prevent, or at least greatly modify many of the distempers incident to the burning climates of Africa and Asia. It will suffice to describe the golden vulture, since the others so much resemble it. In length from beak to tail, in-

clusive, it is about four feet and a half. From the breast downwards it is of a reddish colour, fading on the tail and darkening towards the head. The wings are yellow-brown, and the back is black. The bill is straight nearly to the point, where it becomes hooked. The head, as before stated, is bare. Those of South Africa are thus spoken of by Mr Pringle:—"These fowls divided with the hyænas the office of carrion scavengers; and the promptitude with which they discover and devour every dead carcass, is truly surprising. They also instinctively follow any band of hunters, or party of men travelling, especially in solitary places, wheeling in circles high in the air, ready to pounce down upon any game that may be shot and not instantly secured, or the carcase of any ox or other animal, that may perish on the road. In a field of battle in South Africa, no one ever buries the dead; the vultures and beasts of prey relieve the living of that trouble."—"In the year 1778," quotes an American writer, "Mr Baber and several other gentlemen were on a hunting party, in the island of Cossimbuzar, in Bengal, about fifteen miles north of the city of Murshedabad. They killed a wild hog of uncommon size, and left it on the ground near the tent. An hour after, walking near the spot where it lay, the sky perfectly clear, a dark spot in the air at a great distance attracted their attention. It appeared to increase in size, and move directly towards them. As it advanced, it proved to be a vulture flying in a direct line to the dead hog. In an hour seventy others came in all directions, which induced Mr Baber to remark, 'this cannot be smell.'"—This concluding reflection is supported by additional evidence in the notes to Goldsmith, to which we refer the reader.

The following interesting account of the Black Vulture, or as it is termed, the carrion crow, of the United States, is from the pen of Wilson:—"February 21st, 1809. Went out to Hampstead this forenoon. A horse had dropped down in the street, in convulsions; and dying, it was dragged out to Hampstead, and skinned. The ground, for a hundred yards beyond it, was black with carrion crows; many sat on the tops of sheds, fences, and houses within sight; sixty or eighty in the opposite side of a small run. I counted at one time two hundred and thirty-seven, but I believe there were more, besides several in the air over my head, and at a distance. I ventured cautiously within

thirty yards of the carcass, where three or four dogs, and twenty or thirty vultures, were busily tearing and devouring. Seeing them take no notice, I ventured nearer, till I was within ten yards, and sat down on the bank. Still they paid little attention to me. The dogs being sometimes accidentally flapped with the wings of the vultures, would growl and snap at them, which would occasion them to spring up for a moment, but they immediately gathered in again. I remarked the vultures frequently attack each other, fighting with their claws or heels, striking like a cock, with open wings, and fixing their claws in each other's heads. The females, and I believe the males likewise, made a hissing sound with open mouth, exactly resembling that produced by thrusting a red hot poker into water; and frequently a snuffing like a dog clearing his nostrils, as I suppose they were theirs. On observing that they did not heed me, I stole so close that my feet were within one yard of the horse's legs, and I again sat down. They all slid aloof a few feet; but seeing me quiet, they soon returned as before. As they were often disturbed by the dogs, I ordered the latter home: my voice gave no alarm to the vultures. As soon as the dogs departed, the vultures crowded in such numbers, that I counted at one time thirty-seven on and around the carcass, with several within; so that scarcely an inch of it was visible. Sometimes one would come out with a large piece of the entrails, which in a moment was surrounded by several others, who tore it in fragments, and it soon disappeared. They kept up the hissing occasionally. Some of them having their whole legs and heads covered with blood, presented a most savage aspect. Still as the dogs advanced, I would order them away, which seemed to gratify the vultures; and one would pursue another, to within a foot or two of the spot where I was sitting. Sometimes I observed them stretching their necks along the ground, as if to press the food downwards."

Bruce gives the following striking account of a predatory bird, which we apprehend must have been one of the vultures, although his description of the size would lead us to suppose it to be the Condor. But as this bird has never been met with in Africa, we must suppose it some other species.

"This noble bird," says this celebrated traveller, "was not an object of any chase or pursuit, nor stood in need of any strata-

gem to bring him within our reach. Upon the highest top of the mountain Lamalmon, while my servants were refreshing themselves from that toilsome, rugged ascent, and enjoying the pleasure of a most delightful climate, eating their dinner in the outer air, with several large dishes of boiled goat's flesh before them, this enemy, as he turned out to be to them, suddenly appeared ; he did not stoop rapidly from a height, but came flying slowly along the ground, and sat down close to the meat, within the ring the men had made round it. A great shout, or rather cry of distress, called me to the place. I saw the eagle stand for a minute, as if to recollect himself ; while the servants ran for their lances and shields. I walked up as nearly to him as I had time to do. His attention was fully fixed upon the flesh. I saw him put his foot into the pan, where was a large piece in water prepared for boiling ; but finding the smart, which he had not expected, he withdrew it, and forsook the piece that he held.

“ There were two large pieces, a leg and a shoulder, lying upon a wooden platter ; into these he thrust both his claws, and carried them off ; but I thought he still looked wistfully at the large piece which remained in the warm water. Away he went slowly along the ground, as he had come. The face of the cliff over which criminals were thrown, took him from our sight. The Mahometans that drove the asses, were much alarmed, and assured me of his return. My servants, on the other hand, very unwillingly expected him, and thought he had already more than his share.

“ As I had myself a desire of more intimate acquaintance with him, I loaded a rifle-gun with ball and sat down close to the platter, by the meat. It was not many minutes before he came, and a prodigious shout was raised by my attendants, ‘ He is coming, he is coming,’ enough to have dismayed a less courageous animal. Whether he was not quite so hungry as at his first visit, or suspected something from my appearance, I knew not, but he made a small turn, and sat down about ten yards from me, the pan with the meat being between me and him. As the field was clear before me, and I did not know but his next move might bring him opposite to some of my people, so that he might actually get the rest of the meat, and make off, I shot him with the ball through the middle of the body, about two inches

below the wings, so that he lay down upon the grass without a single flutter.

“ Upon laying hold of his monstrous carcass, I was not a little surprised at seeing my hands covered and tinged with yellow powder or dust. On turning him upon his belly, and examining the feathers of his back, they also produced a dust, the colour of the feathers there. This dust was not in small quantities ; for, upon striking the breast, the yellow powder flew in far greater quantity than from a hair-dresser’s powder-puff. The feathers of the belly and breast, which were of a gold-colour, did not appear to have any thing extraordinary in their formation ; but the large feathers in the shoulder and wings, seemed apparently to be fine tubes, which, upon pressure, scatter their dust upon the finer parts of the feather ; but this was brown, the colour of the feathers of the back. Upon the side of the wing, the ribs, or hard part of the feathers, seemed to be bare, as if worn ; or, I rather think, were renewing themselves, having before failed in their functions.

“ What is the reason of this extraordinary provision of nature, is not in my power to determine. As it is an unusual one, it is probably meant for a defence against the climate, in favour of the birds which live in those almost inaccessible heights of country, doomed, even in its lower parts, to several months excessive rain.”

The Ghebirs, or fire worshippers of India, expose their dead on high altars or towers of wood, where they become the prey of the vultures. When gorged with this food, these birds may be seen drowsily resting upon the trees, from which they will not depart whatever noise may be made to raise them. They will even continue stationary after being struck with a stone. Sometimes, in truth, they have eaten so much that they are not able to stir, and in this situation, and after such a repast, it is no wonder that passers by should be sometimes provoked to assail them, so indolent and self-satisfied are their looks. The Ghebirs, who might be supposed the most likely to punish these pillagers, make it a point of religion to spread the feast purposely for the fowls of the air.

OF THE FALCON AND ITS CONGENERS.

THE days of hawking, like those of chivalry, may be said to be past,—and this class of birds, once subservient to the amusements of man, are now chiefly known to him as marauders upon his property. Occasionally, indeed, some old game-keeper of an ancient family, may still be seen with a falcon on his wrist, as if he had stepped out of a picture-frame, but the sight only reminds us of “a glory” that hath for ever departed. It is difficult to conceive how the sport of falconry should have fallen into *désuétude*, while almost all the other forms of hunting still continue to be practised among us. Such is the case, however, and all the treatises on the subject, with their intricate nomenclature, have become so much dead letter. Little did Guillim dream of this sad change, when he thus spoke of the noble art. “Now,” says he, “since we are come to treat of fowls of prey; whereof (next to the eagle, which is reckoned the sovereign queen of all fowls, like as the lion is reputed the king of all beasts) the Goshawk, the Falcon, the Gerfalcon, and all other long-winged hawks; as also all Sparhawks, Marlions, Hobbeyes, and other like small fowl of prey are the chief, it shall not be altogether impertinent, (though therein I do somewhat digress for my principal purpose,) if I give some little touch of the propriety of terms commonly used of falconers, in managing their hawks, and things to them appurtenant, according to the slenderness of my skill, always subscribing herein to the censure and reformation of professed falconers. The cause of this my digression is, the desire I have to give some superficial taste unto gentlemen, of the terms of falconry, that so in their mutual converse together, they may be able to deliver their minds in apt terms, when in their meetings they happen to fall into discourse of the noble recreations and delights, either of our generous armorial profession, or of hunting and hawking.” Goldsmith has given a specimen from Willoughby, of the terms used in falconry, and we shall treat our readers to one or two, from Guillim.—“Your hawk is said to rouse, and not to shake herself. Sometime your hawk countenances, when she picketh herself. Then shall you not say she pruneth herself, but that she reformeth her feathers. Your hawk collieth, and not break-

eth; your hawk straineth, not clitcheth or snatcheth. After she mantleth, she crosseth her wings together over her back, which action you shall term the warbling of her wings. You shall say your hawk mutesheth or muteth, not skliseth;" and so on through a series of distinctions equally elegant and important.

THE JER-FALCON.

THIS bird is the largest and strongest of the falcon kind, and is found in Russia, Norway, and Iceland, and in the Highlands of Scotland, and the Orkney Isles. It was trained in the days of falconry, to take wild geese, cranes, and other large game. Its breast and belly are white, with darkish spots:—the neck white also, and similarly spotted. The upper part is dark brown inclining to black, with light spots and bars. The tail is barred white and brown; the legs yellow; the claws black:—the head is flat and of an ashen hue; and the bill is a bluish gray.

An old gentleman of Gallowayshire was in the habit of resting during his morning walks, on a seat beneath a wooded precipice. For two or three mornings, a young Jer-falcon came and rested upon a bough above his head as he sat, and at last grew so familiar, as to settle upon his shoulder. The gentleman was highly delighted with his new acquaintance, and brought it such food as, from a knowledge of these birds, he knew to be suitable. At length, it ceased to meet him,—probably its wild nature, as it got older, subduing the gentle confidence which had dictated its first approaches. He often spoke with lively regret of this interesting friendship; remarkable in any point of view, but still more so, when it is considered that the Jer-falcon is almost never seen in the place we refer to,—viz. the parish of Urr, or Orr. The old gentleman was quite confident that he had not mistaken the species, which he had had opportunities, elsewhere, of distinctly knowing. Perhaps the young falcon had somehow wandered from its proper home, and was thus induced to put itself under human protection.

THE COMMON FALCON.

It is now ascertained, that the Peregrine Falcon is the same bird, in a state of maturity, which has been termed the Common Falcon. It is found in the same localities with the Jer-falcon, which it resembles.

“In daring disposition,” says Mr Selby, speaking of this bird, “it equals most of its congeners. I may be allowed to add the following instance, as having happened under my own observation, and as exemplifying not only its determined perseverance in pursuit of its prey, when under the pressure of hunger, but as arguing also an unexpected degree of foresight:—In exercising my dogs upon the moors, previous to the commencement of the shooting-season, I observed a large bird of the hawk genus, hovering at a distance, which, upon approaching, I knew to be a Peregrine Falcon. Its attention was now drawn towards the dogs, and it accompanied them, whilst they beat the surrounding ground. Upon their having found, and sprung a brood of grouse, the falcon immediately gave chase, and struck a young bird, before they had proceeded far upon wing. My shouts and rapid advance, prevented it from securing its prey. The issue of this attempt, however, did not deter the falcon from watching our subsequent movements, and another opportunity soon offering, it again gave chase, and struck down two birds, by two rapidly repeated blows, one of which it secured, and bore off in triumph.”

THE KESTREL.

THIS is a widely diffused and well known species. We again quote Selby's Ornithology: “The castings of a nest of young kestrels that I frequently inspected, consisted entirely of the fur and bones of mice: and Montague remarks, that he never found the feathers or remains of birds in the stomach of this hawk. He therefore concluded, that it is only when it finds a difficulty in procuring its favourite food, that it attacks and preys on the feathered tribe. That it will do so, under some circumstances,

is evident, since bird-catchers have discovered the kestrel in the very act of pouncing their bird-calls : and I have myself caught it in a trap baited with a bird. In summer, the cockchaffer supplies to this species an object of pursuit and food, and the following curious account is given from an eye witness of the fact. 'I had,' says he, 'the pleasure, this summer, of seeing the kestrel engaged in an occupation entirely new to me, hawking after cockchaffers late in the evening. I watched him through a glass, and saw him dart through a swarm of the insects, seize one in each claw, and eat them whilst flying. He returned to the charge again and again.'"

A sparrow, pressed by a kestrel hawk, flew into the window of a dwelling house, at Beargate, in Exeter ; and so eager was the pursuer to obtain possession of the quarry, in the wing of which he had already fastened his talons, that the window was closed upon them, and both were captured.

An extraordinary spectacle was in 1828 exhibited in the garden of Mr May, of the Chequers Inn, Uxbridge, in the instance of a tame male hawk sitting on three hen's eggs. The same bird hatched three chickens last year ; but being irritated by some person, destroyed them. The hawk has this year also hatched one chicken, which was placed with another brood.

THE HOBBY.

THIS bird is migratory in England. It preys upon small birds, preferring the lark to all others. In general colour it is a greyish black.—Like the swallow, it travels with the sun ; always seeking warm regions as soon as winter begins to be felt.

THE MERLIN.

THIS bird is the smallest of the hawk kind, but equals any of its congeners in courage. Its size is little beyond that of the blackbird. Its colour on the back is a light grey : the tips of the tail are white. "In witnessing," says Selby, "its attacks upon a flock of small birds, I have been astonished at the rapid-

ity of its evolutions, and the certainty of its aim, as it never failed in securing and carrying off its victim, even though chosen from the centre of the flock." The Merlin concludes the *generous tribe* of hawks, or those formerly in esteem among falconers. We come now to the short-winged kinds.

THE GOSHAWK.

THIS bird is rare in England, but very common in some of the wild districts of Scotland, and also in Russia and North America. It ranks first among the short-winged hawks, for the purposes of falconry. —

In the year 1830, a Goshawk was observed to alight upon a high rock in the island of Kerrara, Argyleshire, where it was soon disturbed by two of a species of hooded crow, very common in that quarter. The Goshawk, apparently not anxious for a quarrel, made majestically out to sea, pursued by the crows, which no doubt thought that its retreat proved their superiority to it. This made them risk too much—the hawk, enraged at last by their insolence, suddenly wheeled round and made a stroke at one of them, which caused it to fall downwards almost into the waves ere it could recover itself sufficiently to fly to shore. The remaining crow was ultimately reinforced by some sea-gulls, and a screaming contest was maintained as long as the party remained in sight, flying off towards Mull.

THE SPARROW-HAWK.

THIS bird, so very destructive in its wild state, may be easily tamed, and is capable of strong attachment. The female exceeds the male in size, beyond the proportion usual among rapacious birds. A remarkable instance of the boldness and ferocity of the sparrow-hawk was witnessed at Market Deeping one Sunday. Just as the congregation were returning from divine service in the afternoon, a hawk of this species made a stoop at a swallow which had alighted in the cen-

tre of the church ; and, notwithstanding the surrounding spectators, and the incessant twitterings of numbers of the victim's friends, the feathered tyrant succeeded in bearing his prey triumphantly into the air.

Mr W. B. Clarke gives the following interesting account of a tame sparrow-hawk. " About three years ago (1828), a young sparrow-hawk was purchased, and brought up by my brother. This was rather hazardous, as he, at the same time, had a large stock of fancy pigeons, which, in consequence of their rarity and value, he greatly prized. It seems, however, that kindness and ease had softened the nature of the hawk, or the regularity with which he was fed rendered the usual habits of his family unnecessary to his happiness ; for as he increased in age and size, his familiarity increased also, leading him to form an intimate acquaintance with a set of friends who have been seldom seen in such society. Whenever the pigeons came to feed, which they did oftentimes from the hand of their almoner, the hawk used also to accompany them. At first the pigeons were shy, of course ; but, by degrees, they got over their fears, and ate as confidently as if the ancient enemies of their race had sent no representative to their banquet. It was curious to observe the playfulness of the hawk, and his perfect good nature during the entertainment ; for he received his morsel of meat without any of that ferocity with which birds of prey usually take their food, and merely uttered a cry of lamentation when the carver disappeared. He would then attend the pigeons in their flight round and round the house and gardens, and perch with them on the chimney-top, or roof of the mansion ; and this voyage he never failed to make early in the morning, when the pigeons always took their exercise. At night, he retired with them to the dovecot : and though for some days he was the sole occupant of the place, the pigeons not having relished this intrusion at first, he was afterwards merely a guest there ; for he never disturbed his hospitable friends, even when their young ones, unfledged and helpless as they were, offered a strong temptation to his appetite. He seemed unhappy at any separation from the pigeons, and invariably returned to the dove-house after a few days purposed confinement in another abode, during which imprisonment he would utter most melancholy cries for deliverance : but these were changed to cries of joy on the arrival of any person with

whom he was familiar. All the household were on terms of acquaintance with him ; and there never was a bird who seemed to have won such general admiration. He was as playful as a kitten, and, literally, as loving as a dove.

“ But that his nature was not altogether altered, and that, notwithstanding his education, which, as Ovid says,

“ *Emollit mores, nec sinit esse feros,*”*

he was still a hawk of spirit, was proved on an occasion of almost equal interest. A neighbour had sent us a very fine specimen of the smaller horned owl, (*Strix brachyotus*,) which he had winged when flying in the midst of a covey of partridges ; and after having tended the wounded bird, and endeavoured to make a cure, we thought of soothing the prisoner's captivity by a larger degree of freedom than he had in the hen-coop, which he inhabited. No sooner, however, had our former acquaintance, the hawk, got sight of him, than he fell upon the poor owl most unmercifully ; and from that instant, whenever they came in contact, a series of combats commenced, which equalled in skill and courage any of those which have so much distinguished that hero, who to the boldness and clearness of vision of the hawk, unites the wisdom of the bird of Athens. The defence of the poor little owl was admirably conducted ; he would throw himself upon his back, and await the attack of his enemy with patience and preparation ; and, by dint of biting and scratching, would frequently win a positive, as he often did a negative, victory. Acquaintanceship did not seem in this case likely to ripen into friendship ; and when his wing had gained strength, taking advantage of a favourable opportunity, the owl decamped, leaving the hawk in possession of his territory.

“ The fate of the successful combatant was, however, soon to be accomplished ; for he was shortly after found drowned in a butt of water, from which he had once or twice been extricated before, having summoned a deliverer to his assistance by cries that told he was in distress. There was great lamentation when he died, throughout the family ; and it was observed by more than one person, that that portion of the dovecot in which he was wont to pass the night, was for some time unoccupied

* “ Softens the manners, nor permits to be cruel.”

by the pigeons with whom he had lived so peaceably, even during his wars with the unfortunate owl."—*Mag. of Nat. Hist.*

"About the tenth of July," says White, in his *Natural History of Selborne*, "a pair of sparrow-hawks bred in an old crow's nest on a low beach in Selborne-hanger; and as their brood, which was numerous, began to grow up, they became so daring and ravenous, that they were a terror to all the dames in the village that had chickens or ducklings under their care. A boy climbed the tree, and found the young so fledged that they all escaped from him; but discovered that a good house had been kept; the larder was well stored with provisions; for he brought down a young blackbird, jay, and house martin, all clean picked, and some half devoured. The old birds had been observed to make sad havoc for some days among the new flown swallows and martins, which, being but lately out of their nests, had not acquired those powers and command of wing that enable them when more mature to set enemies at defiance."

THE KITE.

THIS well known prowler was formerly used in training young falcons.—Something of the ludicrous and contemptible attaches to him on this account, as well as on account of the stealthy methods he employs to catch his prey. He might, however, if he knew it, content himself with the reflection that he has frequently, when high in his spiral flights, been by ignorant people mistaken for the eagle.—It is amusing to see him on a bird-nesting excursion, gliding noiselessly and slowly along the hedge top of some secluded garden,—‘pausing from time to time,’ and peeping like a school-boy into the branches. If his success in these cases were equal to his assiduity and good will, very few nests could escape him,—but the small birds build in as intricate places as they can find,—and thus so many prove too knowing for him. He is the detestation of the husbandman, who takes every opportunity to destroy him. Still we would not like that the kite were extirpated,—for he is a fine spectacle in a calm summer day, floating with motionless wing along the burn-side, or away among the winding hills, or wavering in the region

of the clouds. The kite is distinguished from other birds of prey, by his forked tail. His colour on the head and back is a pale ash. His spread wings measure five feet from tip to tip,—though he weighs rather under three pounds.

THE BUZZARD.

THE *Common Buzzard* is brown above, and pale below,—and measures in length about twenty inches. It has the character of being a cowardly bird,—so much so, that the sparrow-hawk is said often to attack, and vanquish it. The following anecdote, however, rather goes to modify this account.

The velocity which birds of prey exert, when in pursuit, was exemplified in a singular manner at Nattwell-court, the seat of Sir Trayton F. E. Drake, Bart. some time ago. One of the maid servants had been sweeping the library, and was taking up the dust, close to the window, which overlooks the lawn, when a violent blow from the outside shivered one of the panes of thick plate glass to atoms, and the girl ran out of the library, exclaiming that she had been shot at. Captain Fuller, the brother of Sir Trayton Drake, being in the adjoining room, and hearing the noise, came out to investigate the cause, which he soon ascertained to have proceeded from the attack of a buzzard, then lying dead a few yards from the window. The bird had probably been attracted by the girl's cap as she stooped down, and in the violence of his attack on the supposed quarry, had broken the glass, and with it the thread of his own existence. The glass was nearly a quarter of an inch thick.

The *Rough-legged Buzzard*, resembles the former. "Two of these birds," says Selby, "from having attached themselves to a neighbouring marsh, passed under my frequent observation. Their flight was smooth, but slow, and not unlike that of the common buzzard, and they seldom continued for any length of time on the wing. They preyed upon wild ducks, and other birds, which they mostly pounced upon on the ground; and it would appear, that mice and frogs must have constituted a great part of their food, as the remains of both were found in the stomachs of those that were killed." This bird is a native of northern Europe.

The *Honey Buzzard* is rare in Britain,—but frequently to be met with in the south of France, where it is migratory. It differs particularly from the rest of the buzzard kind, in having small round feathers in the space between its bill and eyes. It is very rarely killed in this country.

The *Marsh Harrier*, and the rest of its kind, resemble the buzzards. It preys on water-fowl, young game, leverets and rats, and flies skimmingly along the ground. It is stationary in this country, and migratory on the continent.

The *Hen Harrier* or *Blue Hawk*, is very like the preceding, both in form and habits. It frequents marshy levels, and builds in long grass, bushes, or the low branches of trees, and is rarely to be met with in mountainous countries.

The *Ash-Coloured Harrier* is rare with us and in Italy, but common in many other European countries. It closely resembles the hen harrier, with which it was formerly confounded by naturalists. Goldsmith dismisses the buzzards and harriers in a few words. He terms them a “stupid tribe.”

THE BUTCHER BIRD.

THE *Greater Butcher Bird*, or *Cinereous Shrike* is nearly the size of the thrush. The peculiarity from which this class of birds take their name, has already been mentioned in the notes to Goldsmith. We add the following from Mr Rennie, on the architecture of birds:—“We discovered near those nests large insects, such as humble bees, and that the unfledged nestlings of small birds were frequently seen stuck upon thorns; but we obtained what we considered good proof of the fact: for the peasants all concurred in affirming, that the butcher-bird fixes its prey upon thorns,—not, however, according to their belief, to allure large game, but to kill or secure what has been already captured. Selby, an eminent living naturalist, has confirmed the fact. ‘I had the gratification,’ he says, ‘of witnessing this operation of the shrike, upon a hedgeaccentor which it had just killed, and the skin of which, still attached to the thorn, is now in my possession. In this instance, after killing the bird, it hovered with it in its bill for a short time over the hedge, appa-

rently occupied in selecting a thorn for its purpose. Upon disturbing it, and advancing to the spot, I found the accenter firmly fixed by the tendons of the wing, at the selected twig.' 'I have met,' continues Selby, 'with the remains of a mouse in the stomach of a Shrike, and Montague mentions one in which he found a shrew. When confined in a cage, this bird still evinces the same propensity for fixing its food, and, if a sharp-pointed stick or thorn is not left for that purpose, it will invariably fasten it to the wires before commencing its repast.' " It is very bold, and will attack almost any bird that intrudes upon its localities.

In America, the Great Shrike has been observed to adopt an odd stratagem for the purpose of decoying its prey. A gentleman there, accidentally observing that several grasshoppers were stuck upon the sharp thorny branches of some trees, inquired of a person who lived close by, the cause of the phenomenon, and was informed that they were stuck there by this bird, which is called by the English settlers, the Nine-Killer.

On farther inquiry, he was led to suppose that this was an instinctive stratagem adopted by the bird, in order to decoy the smaller birds, which feed on insects, into a situation whence he could dart on them. He is called the Nine-Killer, from the supposition that he sticks up nine grasshoppers in succession. That the insects are placed there as food to tempt other birds, is said to appear from their being frequently left untouched for a considerable length of time.

Le Vaillant gives the following account of the Shrike of Southern Africa, (*Lanius collurio*). " When it sees a locust or mantis, or a small bird, it springs upon it, and immediately carries it off, in order to impale it on a thorn, which it does with great dexterity, always passing the thorn through the head of its victim. Every animal which it seizes is subjected to the same fate ; and it thus continues all day long its murderous career, apparently instigated rather by the love of mischief, than the desire of food. Its throne of tyranny is usually a dry and elevated branch of a tree, from which it pounces on all intruders, driving off the stronger and more troublesome, and impaling the inexperienced alive ; when hungry it besets its shambles, and helps itself to a savoury meal."

The *Lesser Butcher-Bird*, or *Red-backed Shrike*, is migratory in Britain, and not widely diffused during its visits to our shores.

It comes in spring, and never stays longer than till October, when it generally commences its equatorial migration ; but sometimes departs in September. Its habits are like those of the preceding.

Mr Blyth, in describing the predatory habits of the Flusher, or Red-backed Shrike (*Lanius collurio*), says, "Wishing to ascertain the manner in which the Shrike attacks its prey, I opened the door of a cage containing one of these birds, and was about to put a sparrow in it, when, before I could disengage it from my hand, the Shrike seized it most instantaneously in its claws, striking out in the manner of a falcon. Its death was effected in an instant. The Shrike extended its wings and spread its tail over it, in precisely the same manner of a hawk, and killed it by pricking a hole in the skull. He then flew to a perch, carrying the sparrow in his claws, and fixing one foot upon it, began to devour it ; nor did he desist until he had nearly finished the whole bird, which he held in this manner for upwards of two hours."

THE OWL KIND.

THE owl has sometimes been made the emblem of wisdom,—and sometimes of stupidity. Examples of the former occur in many old works, on grave subjects, and an instance of the latter will be found in the title page of one edition, at least, of Pope's *Dunciad*. From this it may be inferred, that the owl is equivocal in his character,—but at the same time it should be considered, that as he comes abroad, with the exception of a few species only, in the night, unless disturbed, the same opportunity is not afforded us to know him so well as we do the rest of the feathered tribes.

THE GREAT HORNED, OR EAGLE OWL.

THIS bird is as large as some kinds of eagles, and is very rarely met with in Britain. Like the rest of the horned species, it has a tuft of long feathers on each side of the head. It is indigenous in many parts of Europe, Asia, and America, and its

sight is stronger than in the other species. It frequently preys by day. The upper parts of its body are sprinkled with black, yellow, and greyish spots; the under parts are yellow, spotted, and streaked with black.

The *Common Horned Owl* is much smaller than the former, and has shorter horns. There is a much smaller species, which does not much exceed the blackbird in size.

The *Long-Eared Owl* has, as the name implies, very long tufts of feathers on its head, which give it an imposing appearance. It is indigenous to this country.

"The Virginian Horned owl," says Richardson, "is found in almost every quarter of the United States, and occurs in all parts of the furcountries, where the timber is of a large size. Its loud, and full nocturnal cry, issuing from the gloomy recesses of the forest, bears some resemblance to the human voice, uttered in a hollow sepulchral tone, and has been frequently productive of alarm to the traveller, of which an instance occurred within my own knowledge. A party of Scottish Highlanders, in the service of the Hudson's Bay Company, happened in a winter journey to encamp after night fall in a dense clump of trees, whose dark tops and lofty stems, the growth of centuries, gave a solemnity to the scene that strongly tended to excite the superstitious feelings of the Highlanders. The effect was heightened by the discovery of a tomb which, with a natural taste often exhibited by the Indians, had been placed at this secluded spot. Our travellers, having finished their supper, were trimming their fire preparatory to retiring to rest, when the slow and dismal notes of the horned owl fell on the ear with a startling nearness. None of them being acquainted with the sound, they at once concluded that so unearthly a voice must be the moaning of the spirit of the departed, whose repose they supposed they had disturbed, by inadvertently making a fire of some of the wood of which his tomb had been constructed. They passed a tedious night of fear, and with the first dawn of day, hastily quitted the ill-omened spot."

Brown owls are occasionally very furious and bold in defence of their young. A carpenter, some years ago, passing through a field near Gloucester, was suddenly attacked by an owl that had a nest in a tree near the path. It flew at his head; and the man struck at it with his tool that he had in his hand, but

missed his blow. The enraged bird repeated the attack ; and fastening her talons in his face, lacerated him in a most shocking manner.

Audubon gives the following curious particulars concerning the Barred Owl. " In Louisiana it seems to be more abundant than in any other state. It is almost impossible to travel eight or ten miles in any of the retired woods there, without seeing several of them, even in broad day ; and, at the approach of night, their cries are heard proceeding from every part of the forest around the plantations. Should the weather be lowering, and indicative of the approach of rain, their cries are so multiplied during the day, and especially in the evening, and they respond to each other in tones so strange, that one might imagine some extraordinary fête about to take place among them. On approaching one of them, its gesticulations are of a very extraordinary nature. The position of the bird, which is generally erect, is immediately changed. It lowers its head and inclines its body, to watch the motions of the person beneath ; throws backward the lateral feathers of the head, which thus has the appearance of being surrounded by a broad ruff ; looks towards him as if half blind, and moves its head to and fro in so extraordinary a manner, as almost to induce a person to fancy that part dislocated from the body. It follows all the motions of the intruder with its eyes ; and should it suspect any treacherous intentions, flies off to a short distance, alighting with its back to the person, and immediately turning about, with a single jump, to recommence its scrutiny."

THE SNOWY OWL.

THIS bird, and those that follow, are of the smooth-headed class of owls. The snowy owl has only lately been ascertained as indigenous to Britain. " I have seen specimens," says Selby, " that were killed in Shetland, and some of which are now in the magnificent collection at the Edinburgh Museum. From the observations that have been made on its habits, it appears to be by no means confined to twilight for its supplies of food, rather perhaps the reverse, as it has been seen pursuing its prey in the day-time. Alpine hares, rabbits, rats, and the different species

of grouse, fall under that description. It rests exposed upon the ground, where it can look around it, and descry the approach of an enemy." The following is a traditionary anecdote of the Snowy Owl.

Jengis Khan, who was founder of the empire of the Mogul and Kalmuc Tartars, being defeated, and having taken shelter from his enemies, owed his preservation to a Snowy Owl, which was perched over the bush in which he was hid, in a small coppice. The pursuers of Jengis Khan, on seeing this bird, never thought it possible he could be near it. Jengis in consequence escaped, and ever afterwards, this bird was held sacred by his countrymen, and every one wore a plume of its feathers on his head. The Kalmucs continue the practice at all their great festivals; and indeed pay it divine honours, for they have an idol, in the form of a white owl, to which they affix the real legs of this bird.

THE BARN OWL.

THE Barn Owl, or, as it is provincially styled, the Howlet, is a very well known species. It is romantically and drearily associated in the mind with the solitude of ruined towers and shadowy churchyards. Every person must remember Gray's lines, where he speaks of a stillness that is unbroken.

"Save when from yonder ivy-mantled tower,
The moping owl does to the moon complain
Of such as wandering near her secret bower
Molest her ancient, solitary reign."

THE TAWNY OWL.

THIS bird is the most numerous of the species in Britain. It prefers making its nest in the depths of unfrequented woods. The *little owl* is only occasionally found in England, but common in the warmer parts of Europe.

The species of the owl genus are about fifty in number; but those we have noticed are the principal:—besides, to enumerate all would be only tiresome, as they furnish no anecdotes, which it is the chief object of this work to present to the reader.

OF BIRDS OF THE POULTRY KIND.

THIS interesting class of birds comprehends not only such as are domesticated,—but several other speices, as the partridge and the quail, which we shall notice in the order prescribed by Goldsmith, mentioning also some varieties which he has not included.

OF THE COCK.

THIS courageous and beautiful bird, now so widely diffused throughout the world, was brought originally from Asia. “As some,” says Guillim,* “account the eagle the queen, and the swallow or wagtail the lady, so may I term this the knight amongst birds, being both of noble courage, and also prepared evermore to the battel, having his comb for an helmet, his sharp and hooked bill for a faulchion or court-lax, to slash and wound his enemy : and as a compleat soldier armed cap-a-pe, he hath his legs armed with spurs, giving example to the valiant soldier to expell danger by fight, and not by flight. The cock croweth when he is victor and giveth a testimony of his conquest. If he be vanquished, he shunneth the light, and society of men.” The fowl we are now considering is finely portrayed in the following lines of Dryden, in his tale of the Nun’s Priest.

* A Display of Heraldry, by John Guillim. London, 1677, fol.

“ More certain was the crowing of the cock
To number hours, than is an abbey clock ;
And sooner than the matin bell was rung,
He clapt his wings upon his roost and sung ;
For when degrees fifteen ascended right,
By sure instinct he knew 'twas one at night.
High was his comb, and coral-red withal,
In dents embattled like a castle wall ;
His bill was raven-black and shone like jet ;
Blue were his legs, and orient were his feet ;
White were his nails, like silver to behold,
His body glittering like the burnish'd gold.”

“ Of the several intimations,” says Mr Knapp, “ relating to the voice of animals as preserved to us in Scripture, we have none more deserving of attention than the ‘ crowing of the cock’ throughout the night, there being a first crowing about midnight, and a second again as day began to dawn ; and this so regularly proceeded in, as to be made use of to mark the progress of time from a very early period, it being pointed out as a well known and established occurrence above eighteen centuries gone by. Though this vociferation of the bird is yet persevered in, it seems to be without any regularity, except, perhaps, the general clamour of the early morning, as in particular nights this crowing may be heard at various intervals during the darkness. Night-travelling birds sound a signal for the guidance of their followers ; but these creatures, usually when at rest, or feeding in the gloom, observe a profound silence, and perhaps the cock is the only creature that notifies to any enemy within hearing his asylum on the roost. If such are the habits of these creatures in an unreclaimed state, it must very frequently be productive of injury to them. But in this, his domesticated state, it is a voice which, heard during some sleepless hour, in the deep quiet of the night, becomes most impressive and solemn, brings past events to our recollection, and has, perhaps, often produced holy thoughts and meditations.”*

The boldness with which nature has endowed this bird, for purposes of protection, has been made subservient to the savage amusement of man—but the scenes of the cock-pit are now happily of rare occurrence in this country. The variety known by the name of the *game-cock* excels in courage all the others—

* The Journal of a Naturalist. Third Edit. p. 272. Lond. 1830.

and is perhaps, in this respect, unequalled by any bird whatever.

The hen's devoted attachment to her young is proverbial. Though timid when she has only her own safety to care for, in their defence she will sacrifice all personal consideration. Mr Collins, a respectable innkeeper at Naul in Ireland, had a favourite game hen, which, in June 1820, was perambulating round a large room followed by an only chicken, the remains of a large brood. A rat made a sudden attack on her offspring, seized and dragged it towards its hole. The shrieks of the little captive drew the attention of the mother, who, excited by the strongest maternal feelings, flew to the place from whence the sound proceeded, and seized the murderous rat by the neck, who contrived however to free himself from her bill, and commenced an attack upon the hen, which she courageously resisted by striking with her claws, and pecking with her bill: both fought with determination, and the conflict lasted for twelve minutes, when with a violent blow from her feet she laid the marauder lifeless, and then turned to her affrighted chicken, clucked triumphantly, and encircled it in her wings. On taking up the rat, it was found to have lost an eye in the engagement. There was at Barclay's hotel in Adam's Square, Edinburgh, May, 1818, a hen which sat the usual time, and brought out a brood of chickens. The weather being very severe at the time, the whole brood died, when the affectionate hen attached herself to a small pig that had been taken from its natural protector when hardly able to provide for itself. She clucked round, and sheltered him under her wings with maternal solicitude and tenderness. The little pig seemed grateful for this peculiar favour conferred upon him, and was equally attached to his adopted parent. In June, 1822, a rat entered a poultry house at Heworth near Newcastle, in which was a hen with a numerous brood of chickens. The enraged mother pounced upon the intruder, and a battle ensued, from which the rat endeavoured several times to retreat, but was pursued and held fast by the hen, till the noise attracted the attention of one of the family, who killed the rat with a rake. The rat had young ones, and it is supposed had before made free with some of the young poultry.

It is well known that young ducks, as soon as they are hatched, take to the water and dart after flies with the greatest

activity. A hen which is made to hatch these in place of her natural progeny suffers much anxiety and misery. When they take to the water she is in perfect agony, running round the brink of the pond, and sometimes flying into it, in hopes of rescuing her brood from the danger she apprehends them to be in. The following is a remarkable instance of the degree to which the natural apprehension for her brood may be overcome, in the hen, by the habit of nursing ducks. A hen, who had reared three broods of ducks in three successive years, became habituated to their taking the water, and would fly to a large stone in the middle of the pond, and patiently and quietly watch her brood as they swam about it. The fourth year she hatched her own eggs, and finding that her chickens did not take to the water as the ducklings had done, she flew to the stone in the pond, and called them to her with the utmost eagerness. This recollection of the habits of her former charge, though it had taken place a year before, is strongly illustrative of memory in a hen.

Nicolas Cannon, the driver of the Kentish stages, had a favourite game cock, named Trumpeter, who had won twenty battles; but who had the misfortune to break his leg in a rat-trap. Cannon, who was uncommonly attached to this feathered hero, determined, if possible, to save his life; and amputating the broken part of the limb, gathered up the fibres of the leg, and placed his favourite securely in a sling. After having attended and fed him for five weeks, he took off the bandage, and found the wound completely cicatrized. He next set about making an artificial foot, and being an ingenious fellow, soon fashioned a wooden leg and foot, armed with a spur, and affixed it to the stump of the artificial limb, with which the cock strutted about with great activity amongst the hens at Canterbury, and was a terror to all his feathered rivals.

The courage which cocks display in their combats with each other is too well known to require any illustration. That they are susceptible of friendship for one another is evinced by the following anecdote.

A person at Chester had two very fine cocks, who had often signalled themselves in combat. Wishing to ascertain which of them was the best cock, he pitted them against one another. The spectators betted eagerly upon the event of the battle, and were anxious to see it commence, but the two cocks, after sur-

veying each other, to the great astonishment of every one present, refused to fight. Some grains of corn were then thrown to them in order to produce a quarrel between them ; but they ate them without any disunion arising, and afterwards walked about peaceably together. A hen was then turned into them, in hopes that jealousy might prove occasion of a quarrel, but they caressed her alternately, without any sign of rivalry. They were then taken from each other, and their feathers painted that they might not know one another under this disguise ; but neither was this means effectual in disturbing the harmony that subsisted between the two cocks. At last each of them was pitted separately against a strange cock. They both fought furiously, and both were victorious. As their metal seemed now to be roused, the strange cocks were taken away, and they were again pitted against each other, but still they would not fight, so that it was at length found necessary to relinquish the attempt to dissolve their mutual attachment.

“ I have just witnessed,” says Comte de Buffon, “ a curious scene. A sparrow hawk alighted in a populous court-yard ; a young cock, of this year’s hatching, instantly darted at him, and threw him on his back. In this situation, the hawk defending himself with his talons and his bill, intimidated the hens and turkeys, which streamed tumultuously around him. After having a little recovered himself, he rose and was taking wing ; when the cock rushed upon him a second time, upset him, and held him down so long, that he was easily caught by a person who witnessed the conflict.”

The cock is very attentive to his females, hardly ever losing sight of them. He leads, defends, and cherishes them ; collects them together when they straggle ; and seems to eat unwillingly till he sees them feeding around him.

Dr Percival mentions an incident of a cock, that happened at a gentleman’s seat near Berwick-upon-Tweed, which proves that the jealousy of the cock is not always confined to his rivals, and that it sometimes extends to his beloved female, and he appears actuated by revenge, founded on suspicions of her conjugal infidelity, which the following incident proves. “ My mower,” says the gentleman in question, “ cut a partridge on her nest ; and immediately brought the eggs, fourteen in number, to the house. I ordered them to be put under a very large and beautiful hen,

and her own to be taken away. They were hatched in two days, and the hen brought them up perfectly well, till they were five or six weeks old. During that time they were constantly kept confined in an out-house without being seen by any of the other poultry. The door happening to be left open, the cock got in. My housekeeper hearing the hen in distress, ran to her assistance, but did not arrive in time to save her life. The cock finding her with the brood of partridges, had fallen upon her with the utmost fury, and killed her. The housekeeper found him tearing her with both his beak and spurs, although she was then fluttering in the last agony, and incapable of any resistance. This hen had formerly been the cock's greatest favourite."

A boy in the neighbourhood of St Andrews, some years ago, set a Bantam hen with eggs, expecting her to hatch a fine brood of chickens. On going one morning as usual to feed his favourite, he found she had deserted her nest, and was no where to be seen. In the course of his search he entered the cowhouse, where he heard an unusual combination of sounds, issuing from under the cow's stall. To his surprise he beheld the bantam, with her wings spread over the backs of three nice kittens, which his father's cat had produced the evening before. She appeared to be making great exertions to quiet the objects of her care, but they did not seem to relish the attentions of their new nurse. Mr Roberts, a bootmaker, who resides opposite the Bunhouse, Chelsea, London, who keeps fowls, has a cock in his possession, which he has had for the last seven years, since it was a chicken, and it has every alternate year changed its colour from pure white to red; and *vice versa*. Last year it was white, and is now in the moult, changing to red. On 5th June, 1826, the following very singular occurrence took place at Kislingbury, near Northampton:—A hen with a brood of ducks had been placed in a garden, and also water for the ducks. Some bees from an adjoining hive coming to the water, were, it is supposed, attacked by the ducks, which provoking great numbers who swarmed from the hives, such a spirited onset was made, that in a short time the hen and two of the ducklings were left dead on the field. In April, 1823, died, at Alexander Cleave's, Moorpark, near Wigton, a hen, whose age cannot be accurately ascertained. Cleave's mother got her in a present 24 years ago, and every succeeding year she hatched from 10 to 12 chickens. Un-

fortunately, however, last year, she was the fostermother of a brood of young ducks, which she brought to maturity, although at the expense of many a wet skin, being often exposed to an element altogether foreign to her nature. It is supposed that her care in attending upon, and fostering the young spade-nebs, was the remote cause of her death. In June, 1822, a gentleman in Prince's street, Perth, had a hen, which hatched twenty birds out of thirteen eggs. In September, 1823, a cat having devoured three bantam chickens in a poultry yard in Wellington Square, the young master of the flock conveyed the remainder to his apartment, in which there was a small fracture in one of the window panes. Having shut the door, he considered all safe, but, to the astonishment of the family, the cock and hen each conducted in safety one of their little ones to the situation in the yard which they had formerly occupied. The window the birds descended from is one of the highest in Wellington Square.

A hen belonging to Mr Newport, proprietor of the Fly carriages in London, having broken her leg, concealed herself in a corner of a loft, where a load of straw was afterwards housed; and after being completely covered for 16 days, upon the removal of the straw, she came forth perfectly recovered, and is now walking about apparently uninjured by her fast. The varieties of the domestic cock are as follows:—

The *Crested cock*, which, instead of a comb, has a plume of feathers upon the head.

The *Turkish* and *Bantam cocks*, which are not very much different from the domestic cock. The Bantam cock is distinguished from the Turkish by having the legs and sometimes the toes feathered over.

The *Dwarf cock*, which, though much smaller, resembles the common cock. There are other varieties, but too unimportant to merit enumeration.

THE PEACOCK.

THIS bird was brought originally from India. In splendour of plumage and general appearance, it exceeds any other of the

feathered race, but it never ranked high for sagacity, and it is now despised by the epicure. It may, therefore, be pronounced an almost useless bird; and it is so common about every country residence of the slightest pretensions, that one almost ceases to regard it as an ornament. "The Peacock," says Guillim, "is so proud, that when he erecteth his fan of plumes, he admireth himself. He displayeth his plumes against the rays of the sun, that they may glister the more gloriously: and he loseth this beautiful train yearly with the fall of the leaf; at which time he becometh bashful, and seeketh corners, where he may be secret from the sight of men, until the spring of the year, when his train beginneth to be renewed. And such is the quality of many dames, who being painted and richly attired, cannot keep within doors; but being undressed, and in their own hue, they are loath any man should see them."

The peacock is not fond of having his roost prescribed to him. A gentleman residing in the suburbs of Edinburgh had a peacock which uniformly went to roost at night-fall in the avenue of one of the public parks of the city, where it was liable to be stolen, and was frequently annoyed. There were many large trees on the property of the gentleman, but the stupid bird persisted in visiting the avenue, where, as might have been expected, it ultimately became the prey of thieves.

The peahen is a very timid bird, and though much attached to her young, is never known to fight in their defence. The following account of her nest exhibits her in an interesting point of view. "In the nest of a peahen which we lately examined, we observed that the mother had taken care to choose a very sheltered spot, the nest being overhung by a low branch of a spruce fir, which was suspended over it like an umbrella, and completely protected it from rain and dew. Another circumstance was still more remarkable. It is well known that female birds, for the most part, wear off a considerable portion of the feathers from their breasts, by their frequent movements in turning their eggs. Now, as her eggs were placed on the bare earth, no grass growing under the drip of the spruce branch, the breast of our peahen must soon have been rubbed bare of feathers. Foreseeing this event, as it would appear, the careful creature prepared a soft cushion of dry grass, upon which her breast

might rest. This cushion was placed on the most exposed side of the nest, but no part of it under the eggs themselves.”*

The Japan Peacock would have been hitherto unknown in Europe but by name, had not the Emperor of Japan sent a painting of it to the pope. This bird, and the two varieties that follow, are particularly described in the notes to Goldsmith.

The Chinese Peacock exceeds the common peacock in size, and has the peculiarity of being without spurs.

The Thibet Peacock is two feet two inches in length, or nearly so, and is indigenous to the kingdom of Thibet, in Asia.



THE TURKEY.

It is commonly agreed that the Turkey was brought to Europe from America soon after the discovery of that continent, and that its name arose from its being imported at a period when many of the luxuries of life were derived from Turkey. The turkey-cock is a coxcomb among birds. He is perpetually quarrelling and almost perpetually overcome in combat, but this never seems to lower him in his own opinion. Still he ostentatiously displays his plumage, and repeats his foolish cry. He is particularly irritated by the sight of a red dress, and is sure to pursue the wearer, if the latter chooses to run from him. The turkey hen is a timid inoffensive bird, and greatly attached to her young.

There was in the spring of the year, 1798, in the possession of Mr Mundy, of Wick Farm, near Abingdon, a cock-turkey, which being tired of his solitary life, during the confinement of the hens while sitting, seemed desirous to sit himself, which he did very closely on a rotten goose egg ; his master thinking it a pity that so good a nurse should not be rewarded for his attention put thirteen eggs in a nest, on which he sat three weeks longer, and hatched twelve fine chickens, which enjoyed, if possible, more attention than usual.

It was stated in a note to the text, that the Turkey was a na-

* The Architecture of Birds, p. 89. London, 1831. (Forming part of the Library of Entertaining Knowledge.)

tive of North America; all researches have hitherto failed to discover by whom, or at what period it was introduced into Europe; but we may reasonably conclude that the Spaniards are entitled to the credit of its introduction. Oviedo speaks of it as a kind of peacock, found in New Spain. His description is exceedingly accurate, and proves that before the year 1526, when his work was published at Toledo, the Turkey was already reduced to a state of domestication. Gomarra and Hernandez, soon after the discovery of Mexico in 1518, described this bird among the natural productions of that country, the latter distinguishing the domesticated from the wild breed.

Almost immediately after its introduction into Spain, it found its way to England, as at that period an intimate intercourse existed between the two greatest maritime nations of Europe. But it is somewhat remarkable that there is no account whatever of the transmission, the bird being of so interesting and valuable a kind. It can hardly be supposed that Chabot, who made such extensive discoveries on the coast of the New Continent, could have introduced it direct. Baker, in his Chronicle, quotes the following popular rhyme.

Turkeys, carps, hoppes, piccarel and beer,
Came into England all in one year.

This year, remarkable for so many important and useful acquisitions, is said to have been about the 15th of the reign of Henry the Eighth, in 1524. Hakluyt, an authority of some credit, who in certain instructions given by him to a friend at Constantinople, bearing date 1582, mentions among other valuable things introduced into England from foreign countries, says, "Turkey-cocks and hennes have been introduced about fifty years past." It may therefore be fairly concluded, that they were introduced about the year 1530. At all events, they must have increased with extraordinary rapidity, as in 1555, Dugdale mentions, that at the inauguration dinner of the sergeants-at-law, created in that year, two turkey-cocks and four turkey-chicks were among the delicacies; and were only rated at four shillings each, while swans and cranes, were charged ten shillings, and capons half a crown. Indeed, in 1573 they became so common, that they were enumerated by Trusser, as among the usual Christmas fare at a farmer's table.

The Turkey seems to have been introduced into France nearly about the same time as into England, and Haresbach states that they were naturalised in Germany about 1530 ; and a sumptuary law made at Venice in 1557, which Lanoni quotes, particularises the tables at which they were permitted to be served.

A gentleman of New York, received from his friend at a distance, a Turkey cock and hen, and a pair of Bantams, which he put into his yard with other poultry. Sometime after, as he was feeding them from the barn door, a large hawk suddenly made a pitch at the bantam hen ; she immediately gave the alarm, by a noise which is natural to her on such occasions ; when the turkey cock, who was at the distance of about two yards, and no doubt understood the intentions of the hawk, as well as the imminent danger of his old acquaintance and companion, flew at the marauder with such violence, and gave him so severe a stroke with his spurs, when about to seize his prey, as to knock him from the hen to a considerable distance ; and the timely aid of this faithful auxiliary completely saved the bantam from being devoured.

To this we may add another instance, although very different in its nature, of the gallantry of the turkey cock, which also affords a singular example of deviation from instinct. In the month of May, 1798, a female turkey belonging to a gentleman in Sweden, was sitting upon eggs ; and as the cock in her absence began to appear uneasy and dejected, he was put into the place with her. He immediately sat down by her side ; and it was soon found that he had taken some eggs from under her, which he covered very carefully. The eggs were put back under the female, but he soon afterwards took them again. This induced the owner, by way of experiment, to have a nest made, and as many eggs put in it as it was thought the turkey-cock could conveniently cover. The bird seemed highly pleased with this mark of confidence ; he sat with great patience on the eggs, and was so attentive to the care of hatching them, as scarcely to afford himself time to take the food necessary for his support. At the usual period, twenty-eight young ones were produced ; and the cock, who was in some measure the parent of this numerous offspring, appeared perplexed on seeing so many little creatures picking around him, and requiring his care. It was,

however, thought proper not to intrust him with the rearing of the brood, lest he should neglect them; they were therefore taken away, and reared by other means.

Mr Peacock, of Hockley, in January, 1804, kept a turkey, under two years of age, which at that season, had laid more than one hundred eggs, had hatched ninety, and brought to maturity seventy-five chickens, nearly all of which were cocks.

The famous thieving Magpie of Paloiseau, found in 1825 a formidable rival in a Turkey of Manchester. A jeweller of that town, being away from home for two days, left in his shop a domesticated turkey. This bird, one of the largest of its kind, urged by hunger, swallowed about five thousand pounds worth of cut diamonds, and flew through a window in search of more substantial nourishment. Being caught, killed, and cut up by a cook, he strangely puzzled his new possessor. But the honest man lodged the diamonds in the hands of his attorney; who restored them to the jeweller, when the newspapers made known the loss he had sustained, and which was attributed to some very adroit thieves, as he never dreamt that the turkey had been the depredator.

The wild turkey is much larger than the domestic one, and is uniformly of a deep brown.

Other gallinaceous birds might be added to our domestic poultry, which are indigenous to America, such as the Curassow and its varieties, described in the notes to Goldsmith.

THE PHEASANT.

THE European Pheasant derives its name from the river Phasis in Asia-Minor, on whose banks it was originally found. In shape and colour it ranks with the most elegant of the feathered race. The voice of the pheasant, when heard for the first time, is apt to make us suppose that some maniac has broken his chain and is uttering his plaint in unrestrained solitude. The pheasant, though a contemplative bird, can bear confinement much worse than our common fowls, who lose every wish for liberty, in the mere delight of eating. His feathers become ruffled and dim, and his aspect is expressive of confirmed melan-

choly. There are many varieties of the pheasant ; such as the white, the crested, the spotted, and most splendid of all, the golden pheasant of China.

It is the opinion of naturalists that a hen pheasant in a domestic state will not lay ten or twelve eggs in one season ; but this is an erroneous opinion, for there were lately a brace of pheasants in the possession of Mr R. Lightfoot, of Harlow-hill, the hen of which laid the amazing number of seventy-four eggs, having upon the average laid two days out of three.

A hen pheasant left Houghton Hall, the seat of the Honourable Charles Langdale, some years ago ; and she returned to the keeper's house, with a brood of young pheasants. She was so tame, that she would take food out of the hand of a lady with whom the bird had become familiar. There was also a cock pheasant at Houghton Hall, which was so domesticated as to come for its food when called upon.

The pheasant, when roused, will frequently perch on the first tree, and is so intent upon the dogs as to suffer the sportsman to approach very near. At the time they perch, they most frequently crow, or make a chuckling noise, by which the poacher is led to their destruction.

There is a remarkable physiological fact respecting the plumage of female birds,—that many of them assume somewhat the character of the male when they become aged. This fact has been very frequently noticed in pheasants. The late Mr John Wilson, janitor and stuffer to the Edinburgh College Museum, during the course of his experience had through his hands upwards of fifty hen pheasants which had assumed the male plumage.

Dr Butter of Plymouth has satisfactorily proved, that our domestic female fowls have all a tendency to assume the male plumage at an advanced period of their lives, so as to make them resemble the cock of their own species. In illustration he states, that “ Mr Corham, at Compton, near Plymouth, has, for a long series of years, possessed an excellent breed of game-fowls, the cocks of which are of a beautifully dark-red colour, and the hens of a dusky brown. One hen of this breed was allowed to live as long as possible, because her chickens became so renowned in the cock-pit. When, however, she had attained the age of fifteen years, she was observed, after moulting, to have acquired some arched cock's feathers in her tail, whilst

others (old feathers) remained straight and brown as formerly. By degrees, and during one moulting season, the whole of her dusky plumage was thrown off and succeeded by a covering of red, and more beautiful feathers, quite like those of a cock of her own breed. In the course of a single season, the change was so fully accomplished, that as she walked about, any stranger might have pronounced her rather to have been a cock than a hen. Spurs, likewise, sprouted out on her legs, she acquired a comb and wattles on her head; and even crowed hoarsely not unlike a young cock. Her wattles were, however, cut off afterwards, for the purpose of making her like a fighting cock. After the completion of this change of plumage, she discontinued to lay eggs; and lived no very considerable time to enjoy her recently acquired, but splendid costume." This hen when she died, was stuffed, and is now in the collection of Dr Butter. The Doctor adduces other evidence of a similar change, in two old hens, kept for him by a Mrs Adams, of Bowden, near Totness, on purpose to ascertain if the change was general. One of these was fifteen years old, and the other thirteen. She bought both of these when pullets. They were of the common domestic breed, and excellent layers, which was the reason she kept them so long; and first noticed the change in their plumage after an absence from home of five months, and inquired of her cook where she had got these young cocks, for such they appeared to her, both by their plumage and crowing, and was greatly surprised at being informed they were her old hens.

When we were at Downpatrick, our friend William Johnstone, Esq, informed us of a circumstance, which no doubt was referable to this cause. He had succeeded to a large fortune by the will of an uncle, and among the animals which he acquired was an old cock, a favourite of the old gentleman. Out of respect for his uncle's attachment to this fowl, he kept it till it died a natural death. Mr Johnstone showed us the cock which was then alive, and which he considered as a very extraordinary one, having, at short intervals, laid two small eggs, no larger than those of a blackbird, and nearly circular, with very strong shells. He was quite certain that they were extruded by this supposed cock, as no other fowl could possibly get into the place where he was kept at the time. We told him we had no doubt but it was a hen, which had assumed the male plumage from age; but

he was firmly of belief that it was an old cock, notwithstanding our having informed him, that instances of this kind had been recorded; and even so far back as the time of Aristotle, who flourished in the fourth century before the birth of Christ. From circumstances of this kind have arisen, no doubt, the fable of the cockatrice.

The facts of the female bird assuming the plumage of the male, which have been recorded by authors, are the following: the Pea-Hen, by Hunter; the Turkey, by Bechstein; the Common Pheasant, by Hunter; but of this we have of late had innumerable instances; the Golden Pheasant, by Blumenbach; the domestic fowl, by Aristotle, Tucker, and Butter; the Partridge, by Montagu; the Pigeon, by Tiedmann; the Bustard, by Tiedmann; the American Pelican, by Catesby; the Common Wild-Duck, by Tiedmann. Some years ago, a female Golden Pheasant, in the possession of the Duke of Buccleugh, assumed the male plumage. Mr Falconer of Carlowrie, knew an instance of a domestic Duck assuming the garb of the Drake; and a nobleman in Devonshire had a female Wild Duck, which made a similar change. Lord Glenlee lately presented to the Edinburgh College Museum, a Pea Hen with the male attire.

Our friend, Dr Butter, who has bestowed much attention on this interesting subject, comes to the three following conclusions: 1. That in order to separate and distinguish the sexes, nature has affixed certain external characters, proper to each. 2. That in early life, the differences between the male and female are scarcely observable, but that at a certain period, the male assumes characteristic distinctions, denominated by Mr Hunter, "secondary properties," which the female then wants. 3. That the female seldom makes an advance towards these secondary properties, until the powers of procreation are gone, when an inclination to resemble the masculine form takes place. And he considers this principle as common to all females, and not as a *monstrous* occurrence, which some authors have termed it. In this opinion I entirely concur.

"Some inferences may be drawn" says Dr Butter, "from the foregoing remarks, as to the age of fowls. Natural historians seem to have greatly overlooked this point. Aldrovandus, however, supposed that the domestic fowl seldom or never exceeded ten years of age. In the instances given of Mrs Adams's hens,

one lived to the age of thirteen, and the other to fifteen years, and both were killed.

"Mr Corham's hen died a natural death, in the fifteenth or sixteenth year of her age."

Tiedmann gives a well-attested instance of a domestic cock, which lived twenty-five years.

"The computed age of a fowl, correspondent to that of man, whose days are said to be three score and ten, I would average at fifteen years, namely as about one to five, or fifteen to seventy-two.

"Most fowls would probably die under that age, by accident or disease; but some few may live to the extraordinary age of twenty-five, as old Parr lived to one hundred and fifty-two, and Henry Jenkins to one hundred and sixty-nine." Both these remarkable individuals died in the county of York.

White, in his interesting 'Natural History of Selborne,' says "Lord Stowell sent me, from the great lodge in the Holt, a curious bird for my inspection. It was found by the spaniels of one of his keepers in a coppice, and shot on the wing. The shape, air, and habit of the bird, and the scarlet ring around the eyes, agreed well with the appearance of a cock Pheasant, yet there was no sign of any spurs on the legs, as is usual with all full grown cock Pheasants, who have long ones. The legs and feet were naked of feathers, and therefore it could be nothing of the grouse kind. In the tail were no long bending feathers, such as cock Pheasants usually have, and are characteristic of the sex. The tail was much shorter than the tail of a hen pheasant, and blunt and square at the end. The back, wing-feathers, and tail, were all of a pale russet, curiously streaked, somewhat like the upper parts of a hen partridge. I returned it with my verdict, that it was probably a spurious or hybrid hen-bird, bred between a cock Pheasant and some domestic fowl."

This curious *lusus naturæ* is now in the collection of the Earl of Egremont, at his seat at Petworth, and is considered by naturalists to be a mule betwixt the black-cock and the common pheasant.

THE PINTADO, OR GUINEA HEN.

THE Guinea hen is a native of Africa, but now common in Europe and America. Though its plumage is very fine, its tail hangs downwards in such a manner as to give it a somewhat awkward appearance. Its colour is dark, spotted with white, which at a distance blends into a greyish hue. Its cry is harsh and very disagreeable.

It is said that wild birds of this species will receive food from the hand, almost immediately after they are caught.

If trained young, no bird so soon becomes tame or familiar. Mr Bruce informs us, that when he was on the coast of Senegal, he received as a present from an African Princess, two guinea-fowls. Both these birds were so familiar, that they would approach the table and eat out of a plate. When they had liberty to fly about the beach, they always returned to the ship, when the dinner or supper bell rung.

THE BUSTARD.

THIS is the largest of our British land birds. They frequent in flocks the downs of Salisbury Plain, the moorlands of Sussex and Cambridgeshire, the uplands of Dorsetshire. They are very timid, and as they always have sentinels at watch, they seldom become the prey of the sportsman. From some peculiarity in their food, which has not yet been discovered, they have never propagated their species, when domesticated.

Some years ago, a pair of Bustards, male and female, were kept in a garden at Norwich infirmary. The male was an extremely majestic bird, and possessed of much courage, for he feared nothing, seizing any one who approached near him by the coat. The female, on the contrary, was shy and timid. It was, however, remarkable that the male bird, on discovering even a small hawk, however high in the air, squatted down on the ground, exhibiting strong marks of fear.

In 1804, a fine bustard was shot, and taken to Plymouth market, where it was purchased by a publican for a shilling, its

value being unknown, whereas it would have brought three or four pounds in the London market. So completely lost was this rare wanderer, that it was rejected at the second table, in consequence of the pectoral muscles differing in colour from the other parts of the breast, which is not unusual in birds of the grouse kind. Some country gentlemen arriving at the inn the following evening, and hearing of the circumstance, desired that the princely bird might be introduced, and partook of it cold at their repast.

The *Little Bustard* is rare with us, but very common in France. Like the former, it is very timid and wary.

THE GROUSE, AND ITS CONGENERS.

Black grouse or *Black cock*. “The extirpation of that noble bird the *Capercaillie*,* or *Cock of the Wood*, which formerly inhabited the forests and mountainous districts of Scotland and Ireland, has placed the black grouse at the head of this genus in the British Fauna. The present species is now confined in the southern parts of England, to a few of the wildest uncultivated tracts, such as the New Forest, Dartmoor and Sedgemoor, in Devonshire, and the heath of Somersetshire. It is also sparingly met with in Staffordshire, and in parts of North Wales, where it is under strict preservation. In Northumberland, it is very abundant, and has been rapidly increasing for some years past, which may be partly attributed to the numerous plantations that, within that period, have acquired considerable growth in the higher parts of the country, as supplying it both with food and protection. It abounds throughout the Highlands of Scotland, and is also found in some of the Hebrides. The bases of the hills in heathy and mountainous districts, which are covered with a natural growth of birch, alder, and willow, and intersected by morasses, clothed with long and course herbage, as well as the deep and wooded glens so frequently occurring in such extensive wastes, are the situations best suited to the habits of these birds, and most favourable to their increase.”† Frequent attempts have been made to domesticate this bird, but without success; and it is so timid when full grown, as to be with difficulty approached within gunshot. The general colour is a deep black, which grows blue on the neck. The eye-brows are vermilion-red. The legs are feathered over with dark grey.

The Red Grouse, or *Red Game* is very common in the high

* The last individual of this species in Scotland was killed about forty years ago near Inverness; previous to which date the breed had become extinct in Ireland.

† Selby's Ornithology.

moorlands of the northern districts of England, and in the Highlands of Scotland. It also inhabits similar localities in Ireland and Wales, though in the former it is by no means abundant. It is more tameable than the black cock, and even breeds when kept in confinement. Sometimes varieties are met with, of a cream-colour. It has a scarlet fringe of skin above the eyes, and is chestnut-brown below, and reddish with black spots above.

Perhaps the most remarkable bird of this genus is the Pinnated Grouse of North America. It is nineteen inches long, and weighs about three pounds and a-half; the neck is furnished with supplemental wings, each composed of eighteen feathers, five of which are black, and about three inches long; the rest shorter, also black, streaked laterally with brown, and of unequal lengths; the head is slightly crested; over the eye is an elegant semicircular comb of rich orange, which the bird has the power of raising or relaxing; under the neck wings, are two loose, pendulous, and wrinkled skins, extending along the side of the neck, for two-thirds of its length; each of which, when inflated with air, resembles in bulk, colour, and surface, a middle-sized ripe orange; the whole plumage is beautifully mottled with black and reddish-brown. The female is considerably less; of a lighter colour, destitute of the neck wings, the naked yellow skin on the neck, and the semicircular comb of yellow over the eye.

The season at which these curious birds pair is in March, and the breeding time is continued through April and May. Then the male grouse distinguishes himself by a peculiar sound. When he utters it, the parts about his throat are sensibly inflated and swelled. It may be heard on a still morning for three or more miles; some think that they have perceived it as far as five or six. This noise is a sort of ventriloquism. It does not strike the ear of a bystander with much force, but impresses him with the idea, though produced within a few roods of him, of a voice a mile or two distant. This note is highly characteristic. Though very peculiar, it is termed *tooting*, from its resemblance to the blowing of a conch or horn, from a remote quarter. The female makes her nest on the ground, in recesses very rarely discovered by men. She usually lays from ten to twelve eggs. Their colour is of a brownish colour, much resembling that of a guinea-

nen. When hatched, the brood is protected by her alone. Surrounded by her young, the mother-bird exceedingly resembles a domestic hen and chickens. She frequently leads them to feed in the roads crossing the woods, on the remains of maize contained in the droppings of horses. In that employment they are often surprised by the passengers. On such occasions the dame utters a cry of alarm. The little ones immediately scamper to the brush, and while they are skulking into places of safety, their anxious parent beguiles the spectator by drooping her wings, limping along the path, rolling over the dirt, and other pretences of inability to walk or fly.

During the period of mating, while the females are occupied in incubation, the males have a practice of assembling, principally by themselves, in some select and central spot, where there is very little underwood. From the exercises performed there, it is called *scratching place*. The time of meeting is the break of day. As soon as the light appears, the company assemble from every side, sometimes to the number of forty or fifty. When the dawn is past, the ceremony begins by a low tooting from one of the cocks. This is answered by another. They then come forth one by one from the bushes, and strut about with all the pride and ostentation they can display. Their necks are incurvated; the feathers on them are erected into a sort of ruff; the plumes of their tails are expanded like fans; they strut about in a style nearly resembling the pomp of a turkey-cock. They seem to vie with each other in stateliness; and, as they pass each other, frequently cast looks of insult, and utter notes of defiance. These are the signals for battles. They engage with wonderful spirit and fierceness. During these contests they leap a foot or two from the ground, and utter a crackling, screaming, and discordant cry.

The Ptarmigan or *White Grouse*, is totally extinct in England, and is only to be met with in the Highlands and Islands of Scotland. It inhabits the rocky summits of high mountains, which it so much resembles in hue, as often to escape the piercing glance of the eagle. It is so tame, that it sometimes permits the shepherds to knock it down with their staves. It is, as might be inferred, easily domesticated. Other varieties, some of which, however, have been identified with those just described, will be found enumerated in the notes to Goldsmith.

THE PARTRIDGE AND ITS VARIETIES

THIS well known bird is about thirteen inches in length :— its plumage brown and ash, mingled with black. It is abundant through the kingdom, with the exception of some of the moorlands of the north of England, and the Highlands of Scotland.

Partridges exhibit wonderful instances of instinct, in their attachment to their young. If danger approaches the brood, before they are able to fly, both the parents take wing, and the young ones get under the nearest shelter, where they remain motionless ; the hen, after flying some hundred yards, lights on the ground, and running to the place she set out from, collects her little family, and conducts them to a place of safety. The cock, at the same time, endeavours to engage the attention of the sportsmen ; when all danger is over, the call of the female directs him to her retreat. The hen, in the absence of her mate, has been known to take the part of alluring men from her brood, which is thus described by White, in his *Naturalist's Calendar*. "A hen partridge came out of a ditch, and ran along, shivering with her wings, and crying as if wounded, and unable to get from us." "Montague," says Selby, "mentions an instance, in which a partridge, on the point of hatching, was taken, together with her eggs, and carried in a hat to some distance ; she continued to sit, and brought out her young in confinement. Several parallel cases are related, and some not very dissimilar have come under my own observation. As soon as the young are excluded, the male bird joins the covey, and displays equal anxiety with the female for their support and defence. There can be few persons conversant with country affairs, who have not witnessed the confusion produced in a brood of young partridges, by any sudden alarm ; or who have not admired the stratagems to which the parent birds have recourse in order to deceive, and draw off the intruder. Their parental instinct, indeed, is not always confined to mere devices for engaging attention ; but

where there exists a probability of success, they will fight obstinately for the preservation of their young, as appears from many instances already narrated by different writers, and to which the following may be added, for the truth of which I can vouch. A person engaged in a field, not far from my residence, had his attention arrested by some objects on the ground, which, upon approaching, he found it to be two partridges, a male and female, engaged in battle with a carrion-crow ; so successful and so absorbed were they in the issue of the contest, that they actually held the crow, till it was seized, and taken from them by the spectator of the scene. Upon search, the young birds (very lately hatched,) were found concealed amongst the grass. It would appear, therefore, that the crow, a mortal enemy to all kinds of young game, in attempting to carry off one of these, had been attacked by the parent birds, and with the above singular success."

R. W. Jones, Esqr. of Woodhall, a few years ago, killed a partridge, which had a horn growing from its head of the following dimensions : one inch and a half in height, three quarters of an inch in width, and a quarter of an inch in thickness, a little curved backwards, and somewhat resembling the end of a sheep's horn.

The wild nature of the partridge renders it extremely difficult to tame ; and of the many attempts which have been made to domesticate it, almost all have failed. Among the few instances of this bird remaining tame, was that of one reared by the Rev. Mr Bird. Long after reaching maturity, it attended the parlour at meal times, and received food from any hand that presented it. It was frequently in the habit of stretching itself before the fire, and enjoying the warmth. This bird ultimately fell a prey to a cat.

It is not generally known that the crescent or horse-shoe (as it is called) on the breast of a partridge, is a much less peculiar characteristic of the male than it is said to be. Persons who get their living by preserving birds, not unfrequently, on dissection, ascertain this mark on the hen ; and old hen birds becoming barren, obtain (as in the pheasant) the plumage of the male. In regard to size, a cock partridge from a rich inclosed corn country has been known to weigh sixteen ounces, but commonly they do not weigh so much ; and on poor half-cultivated hills on

the edges of high moors, nine or ten ounces would weigh down a bird. The red-legged partridge is now not uncommon on many manors in the West of England, also in Suffolk and Norfolk. It certainly is a species of great beauty, and by some persons is preferred for the table to the common partridge.

On the farm of Walkingshaw estate, in 1829, a partridge chose to make its nest within two yards of the kitchen door, where she sat over thirteen eggs with parental solicitude, and hatched them all in safety. She was not the least alarmed by people constantly passing her nest, but would sit perfectly unconcerned, while several individuals were looking at her.

There was in May 1826, on the farm of Mr Potheary, Boveridge, Dorset, a turkey and a partridge, which were both depositing their eggs in the same nest : the former had eight eggs, and the latter seven.

The mode of taking the Virginian partridge, as practised in the Middle States of America, is curious, an account of which we shall give in the words of the celebrated naturalist Audubon.

A number of persons on horseback, provided with a net, set out in search of partridges, riding along the fences or briar thickets, which the birds are known to frequent. One or two of the party whistle in imitation of the call note, and as partridges are plentiful, the call is soon answered by a covey, when the sportsmen immediately proceed to ascertain their position and number, seldom considering it worth while to set the net, when there are only a few birds. They approach in a careless manner, talking and laughing as if merely passing by. When the birds are discovered, one of the party gallops off in a circuitous manner, gets in advance of the rest by a hundred yards or more, according to the situation of the birds, and their disposition to run, while the rest of the sportsmen move about on their horses, talking to each other, but at the same time watching every motion of the partridges. The person in advance being provided with the net, dismounts, and at once falls to placing it, so that his companions can easily drive the partridges into it. No sooner is the machine ready, than the net-bearer remounts, and rejoins the party. The sportsmen separate to a short distance, and follow the partridges, talking and whistling, clapping their hands, or knocking upon the fence-rails. The birds move with great gentleness, following each other, and are kept in the right direction by the

sportsmen. The leading bird approaches and enters the mouth of the net, the others follow in succession, when the net-bearer leaps from his horse, runs up and secures the entrance, and soon dispatches the birds. In this manner, fifteen or twenty partridges are caught at one driving, and sometimes many hundreds in the course of a day. Most netters give liberty to a pair out of each flock, that the breed may be continued.

On the farm of Lion Hall, in Essex, belonging to Colonel Hawker, in the year 1788, a partridge formed her nest and hatched sixteen eggs, on the top of a pollard oak-tree. What renders this circumstance the more remarkable is, that the tree had fastened to it, the bars of a stile, where there was a foot-path; and the passengers in going over, discovered and disturbed her before she sat close. When the brood was hatched, they scrambled down the short rough boughs which grew out all around from the trunk of the tree, and reached the ground in safety.

In the year 1798, the following occurrence took place at East Dean in Sussex, which will tend to prove that partridges have no power of migration. A covey of sixteen partridges being disturbed by some men at plough, directed their flight across the cliff to the sea, over which they continued their course about three hundred yards. Either intimidated or otherwise affected by that element, the whole were observed to drop into the water: twelve of them were soon afterwards floated to the shore by the tide, where they were picked up by a boy, who carried them to Eastbourn, and sold them.

The following curious fact is from Bell's Weekly Messenger, to which it was communicated by a highly respectable gentleman of Blandford, and we give it in the words of the writer:—"James Cox, Mr Grosvenor's under keeper, on his road to speak to me, on Friday the 15th June 1804, heard an old partridge, as if in great distress, beyond the hedge in a field of oats, and judging that some enemy was among her young, he leaped over to examine into the matter; but seeing nothing, and still finding the old bird running round him, in the same continued distress, he looked more minutely among the corn; and, at last, found a large snake in the midst of the infant brood. Willing to see if any mischief had been done, he immediately cut open the snake's belly, when two young partridges ran from their horrid

prison, and joined their distressed mothers, apparently very well, and two others were found in the same rapacious maw, quite dead. Strange as this may appear, it is not more curious than really true."

THE QUAIL.

THE *Common Quail* is to be met with in most parts of Europe, and is migratory at fixed periods. It is much smaller than the partridge. The head is black, with a margin of chestnut-brown: over each eye there is a streak of white; the back is barred with light yellow. Like the partridge, its flight is attended with a loud whirring sound. On their periodical flights between Europe and Africa, the quails touch at the islands of the Archipelago, and elsewhere, and prodigious numbers of them are killed. They are very pugnacious birds, and were trained of old, in the manner of our game cocks by the Greeks and Romans.

BIRDS OF THE PIE KIND.

THE class of birds we are now entering upon, is perhaps less in favour with man than any other that could be mentioned,—but as some recompense, at least as respects the present work, its members furnish us with more varied instances of sagacity, than are to be found among the rest of the winged tribes. We therefore proceed, without further general introduction, to place such anecdotes of them before the reader, as we have been able to collect.

THE RAVEN.

THE Raven is the largest bird of its genus ; the male and female are alike in their plumage. The male weighs about two pounds seven ounces, and the female from four to five ounces more ; the length is nearly two feet, the bill is black, strong and thick, two inches and three quarters in length ; the nostrils are covered with bristles, which reach more than half way down the bill ; the irides are dusky ; and the whole plumage black, the upper parts reflecting a strong blue iridescence ; the under parts dull and dusky : the tail consists of twelve feathers, somewhat rounded ; about the throat the feathers are long, loose, and sharp pointed.

When brought up young, the Raven becomes very familiar and, in a domestic state, he possesses many qualities that render him highly amusing. Busy, inquisitive, and impudent, he goes every where, affronts and drives off the dogs, plays his tricks on the poultry, and is particularly assiduous in cultivating the friendship of the cook-maid, who is generally his favourite in the family. But with the amusing qualities, he has too frequently

the vices and defects of a favourite. He is by nature a glutton, and a thief by habit. He does not confine himself to petty plunder on the pantry or the larder; he aims at more magnificent depredations—at spoils that he can neither exhibit nor enjoy, but which, like a miser, he rests satisfied with having the satisfaction of sometimes visiting and contemplating. To all kinds of metals he is particularly attached.

This bird is very hardy, crafty, and wary. He is easily domesticated, and is very mischievous, readily catching up any thing glittering and hiding it. There is a well-authenticated fact of a gentleman's butler having missed a great many silver spoons and other articles, without being able to detect the thief for some time; at last he observed a tame raven with one in his mouth, and watched him to his hiding-place, where he found more than a dozen.

The raven generally makes choice of the largest trees to build in, or of precipitous and inaccessible rocks. The nest is formed of sticks and lined with wool, hair, and various other substances; it is commonly placed in the fork of the large branches of trees, or in a deep crevice of a rock; and if ivy is abundant on a cliff—there it is most likely to fix its abode. The female lays five or six eggs of a bluish-green colour, blotched and spotted with brown and ash-colour, somewhat larger than that of a crow; they weigh from six to seven drachms. It is no unusual circumstance for these birds to build their nest contiguous to a rookery, and by their continual depredations on the nests of that republic, completely to drive the members away. The raven is one of the earliest breeders of all British birds; commencing its nest frequently in the middle of February.

On some of our most precipitous and rocky coasts, the raven sometimes chooses a place for its nidification. During this period they are extremely bold, and will not permit even the falcon to approach their nest. The male and female pair for life, and drive their young from their haunt as soon as they are able to provide for themselves. Instances have occurred where the raven has been found quite white, and sometimes pied.

The sable plumage and harsh croaking voice of these birds, added to their habits and supposed longevity, have furnished the poets of all ages with numerous similitudes. Shakspeare has made the Moor of Venice say—

"It comes o'er my memory,
As does the Raven o'er the infested house,
Boding to all—"

Again in the *Tempest*, Caliban utters the following malediction :

"As wicked dew, as e'er my mother brush'd,
With Raven's feather, from unwholesome fen,
Drop on you both."

Lady Macbeth hearing of Duncan's approach, against whose life she had conspired, says,

"The Raven himself is hoarse,
That croaks the fatal entrance of Duncan
Under my battlements."

Selby says, "Ravens fly at a considerable height in fine weather, and perform various rapid evolutions. While thus engaged they utter a peculiar and quickly-repeated note, unlike their usual coarse and disagreeable croak."

Although ravens are very destructive to poultry and even young lambs, yet in many parts of the country a popular respect is paid to them, as having been the birds which fed the Prophet Elijah in the wilderness. This prepossession is of very ancient date, for so far back as the Roman Empire, it was thought an ominous bird, and the most profound veneration was paid to it by that people.

We extract the following Sonnet to a Raven, from the *Edinburgh Literary Journal* :

With short deep cry, and quickly moving wing,
There passest thou—impatient to forsake
This peopled plain, for the wild heights which make
An upper world of solitude, and bring
The clouds of heav'n between thee and the vale.
Where hast thou been, old haunter of the dead ?
Perhaps some scene of coming doom was spread
To thy seer-gifted eye.—Or on the gale
The breath of dissolution floated by
Whisp'ring of ghastly form laid far away
From the domains of human mansionry,
In grim repose, where the snow whirl'd like spray
Among its rocks. Oh ! horrid sight to see,
The features of the dead glare up at thee.

We are informed by Pliny, that a tame raven which had been kept in the Temple of Castor, paid frequent visits to a tailor in the neighbourhood. This man was much pleased with its visits and taught the bird various tricks ; and to pronounce the names of the emperor Tiberius, and those of the whole members of the royal family. Its fame reached the remotest corners of Rome, and from the number who came to see this prodigy, the tailor became rich. An envious neighbour killed the raven, and blasted the tailor's future hopes of fortune. The Romans were incensed at this wanton cruelty, punished the offender, and gave to the bird all the honours of a magnificent interment.

Of the perseverance of the Raven in the act of incubation, the following illustration is given in White's Natural History of Selborne.

“ In the centre of a grove near Selborne, there stood an oak, which though shapely and tall on the whole, bulged out into a large excrescence near the middle of the stem. On the tree a pair of ravens had fixed their residence for such a series of years, that the oak was distinguished by the name of the “ raven tree.” Many were the attempts of the neighbouring youths to get at this eyry ; the difficulty whetted their inclinations, and each was ambitious of surmounting the arduous task ; but, when they arrived at the swelling, it jutted out so much in their way, and was so far beyond their grasp, that the boldest lads were deterred, and acknowledged the undertaking to be too hazardous. Thus the ravens continued to build nest after nest, in perfect security, till the fatal day arrived on which the wood was to be levelled. This was the month of February, when these birds usually sit. The saw was applied to the trunk, the wedges were inserted in the opening, the woods echoed to the heavy blows of the beetle or mallet, the tree nodded to its fall ; but the dam persisted to sit. At last, when it gave way, the bird was flung from her nest ; and though her maternal affection deserved a better fate, was whipped down by the twigs, which brought her dead to the ground.”

In October, 1822, there was in the possession of Mr James Weymess, the gamekeeper at Riddleham Hope, the seat of Charles John Clavering, Esq., a young raven, fifteen months old, which was taken from the nest when very young, and brought up by the keeper with the dogs. It was so completely domes-

ticated that it would go out with the keeper and the dogs, and when it took its flight further than usual, at the sound of the whistle it would return and perch upon a tree or a wall, and watch all their movements. It was no uncommon thing for it to go to the moors with him, and to return a distance of 10 or 12 miles. It would even enter a village with the keeper, partake of the same refreshment, and never leave him until he returned home—a circumstance perhaps never yet recorded in the annals of natural history.

In the year 1766, the especial interposition of Divine Providence was manifested, in a most extraordinary manner, to a poor labourer, at Sunderland. This man being employed in hedging, near to an old stone quarry, went to eat his dinner, in a deep excavation, in order to be sheltered from the weather, which was stormy; and as he went along, pulled off his hedging gloves, and threw them down at some distance from each other. While at his repast, he observed a raven pick up one of them, with which it flew away; and very soon afterwards, returned, and carried off the other. The man being greatly surprised, rose to see if he could trace where the bird had gone with his gloves. He scarcely had cleared the quarry, before he saw large fragments fall down into the very place where he had been seated; and where, if he had continued a minute longer, he must inevitably have been crushed to pieces.

A gentlemen who resided near the New Forest, Hampshire, had a tame Raven, which used frequently to hop about the verge of the forest, and chatter to every one it met.—One day, a person travelling through the forest to Winchester, was much surprised at hearing the following exclamation: “Fair play, gentlemen! fair play! for God’s sake, gentlemen, fair play!” The traveller looking round, to discover from whence the voice came, to his great astonishment, beheld no human being near. But hearing the cry of fair play again repeated, he thought it must proceed from some fellow-creature in distress. He immediately rushed into that part of the forest from whence the cries came, where, to his unspeakable astonishment, the first objects he beheld, were two ravens combating a third with great fury, while the sufferer, which proved to be the tame one aforesaid, kept loudly vociferating “fair play;” which so diverted the traveller, that he instantly rescued the oppressed bird, by driving away

his adversaries; and was highly pleased with his morning's adventure.

A gentleman in Perthshire, brought up, and kept a tame raven in his stables, which proved of great use in destroying rats: and this he performed with a degree of cunning and adroitness which could scarcely be exceeded by human intelligence. The time he fixed on for his work of destruction, was generally in the forenoon, when the servants were out airing the horses. On such occasions Jacob, (this was the raven's name) took care to provide himself with a bone, on which there was some meat; and this he placed opposite the rats' holes, in front of the crib; and then perched himself above, watching with a steady and keen look the spot where the bone was laid. This bait seldom failed to attract the scent of the rats when all was quiet, and no sooner did they make their appearance, than he darted down on them, and seldom missed his aim; and having seized them, they were despatched in an instant. And what was singular, he did not eat them when at first secured, for he generally carried them to the sole of a window, returning to the sport, in which he seemed to take great interest. And he has been known to kidnap half a dozen in a forenoon. When his sport was interrupted by the return of the horses, he carried off his booty, one by one to a neighbouring tree, where there was an old crow's nest, in which he deposited the spoil, and fed on them at his leisure. It was curious, that he never attempted to meddle with the young poultry, for, on the contrary, the poultry yard was a favourite resort of his; although he was frequently roughly handled by a cock.

In the Highlands, and especially the Hebrides, the raven is of very common occurrence. It there builds its nest in inaccessible rocks early in March, and protects it against all intruders with great courage. If an eagle happens to come in sight, the raven is sure to be after him; and, although it does not actually pounce upon its formidable antagonist, it so harasses him by attempts to peck at him, that the latter, less agile and courageous, is glad to get out of the way as fast as possible. For this reason, ravens are never destroyed on sheep farms, as they are sure to keep off all the eagles from their neighbourhood. At the same time, they never molest the rock pigeons and cormorants that nestle in the same rocks. The food of the raven is carrion of

all kinds, shell-fish, insects, grubs, and grain. In autumn they sometimes do considerable damage to the barley. It is truly surprising to see with what rapidity ravens congregate from all parts of a district when a carcase occurs. In a district there may perhaps be a family half a mile from the spot, another half a mile farther off, and so on. A few minutes perhaps after the sheep has fallen, or the fish has been cast ashore, a solitary raven makes his appearance. In a few minutes more another comes, another and another; and if the carcase be that of a large animal, scores of them may be seen about it. When a whale or grampus is cast ashore, hundreds of ravens collect from all quarters, and on such occasions visitants arrive that have probably travelled a hundred miles. When a raven falls upon a dead animal, the first thing he does is to light near it, and inspect it curiously, first turning one side of his head to it and then the other. He then hops a little nearer, stops and looks at it; then a little nearer; and at length mounts upon it. He then picks out the eyes. The next part that he falls to, if it be a quadruped, is what anatomists call the perineum. He then bores into the abdomen, and drags out the intestines. In the meantime he has got helpers in plenty, and the flesh quickly disappears. About a whale they remain for many weeks, and the last putrid morsel seems as savoury as the first, for all is picked to the bare bones.

M. Montbeillard states that ravens are much attached to the place of their nativity; and that when a pair choose a spot for their nest, they make it their ordinary residence, and do not easily forsake it. Unlike the carrion crow, they do not retire at night to the woods, but find beneath the shelving projections of their own mountains, a screen from the wintry winds. Thither they retire in parties and sleep on the bushes of the rocks, making their nests in the adjoining crevices, or in the holes of walls, on the tops of deserted towers, or high in large straggling trees.

THE CARRION CROW.

THE Carrion Crow is very like the raven in form and habits, but much smaller. The bill is more curved than in the rook,

and its voice is hoarser. This species seldom associate in flocks ; but for the most part remain in pairs. They feed upon whatever comes in their way. Montagu saw one pursue a pigeon, on which it pounced like a hawk, and another that knocked a pigeon dead from a barn-roof.

In the year 1816, a Scotch newspaper states that a carrion crow, perceiving a brood of young chickens, fourteen in number, under the care of a parent hen, picked up one of them ; but a young lady seeing what had happened, suddenly pulled up the window, and calling out loudly, the plunderer dropt his prey. In the course of the day, however, the audacious and calculating robber, accompanied by thirteen others, came to the place where the chickens were, and each seizing one, got clearly off with the whole brood at once.

THE ROOK.

THIS well known bird is generally somewhat larger than the carrion crow, and greatly different in habits. " The hardy rook is probably not found in such numbers as formerly, its haunts having been destroyed or disturbed by the felling of trees, in consequence of the increased value of timber, and the changes in our manners and ideas. Rooks love to build near the habitation of man ; but their delight, the long avenue, which enables them to caw as it were in perspective from end to end, is no longer the fashion ; and the poor birds have been dispersed to settle on single distant trees, or in the copse, and are captured and persecuted.

" Old-fashioned halls, dull haunts, and croaking rooks, a modern Zephalinda would scarcely find now to anticipate with dread. In many countries very few rookeries remain, where once they were considered as a necessary appendage, and regularly pointed out the abbey, the hall, the court-house and the grange."*

Some years ago there was a tame crow about the manse of Hoy in Orkney, which became so familiar, as to visit all the apartments of the house, whenever doors or windows were left open. Crows, as is well known, are greatly addicted to pilfer-

* Journal of a Naturalist. Third Edit. p. 194. Lond. 1830.

ing, and our hero, not to be unlike his neighbours, perpetrated several achievements of this kind, of which the following is one of the more remarkable. One day about noon, a pack of cards was left on a table in the dining-room. The minister, who happened to go out with a friend, on his return wished to lay up the cards, but could not find them in any part of the house. Some time after, one of the family looking out of the window, which had been left open, saw all the cards arranged, face upward, on a garden wall which extended in a right line from the window. The mysterious disappearance of the cards was soon explained. The crow, strolling into the room, and seeing the unseemly sight of cards on a minister's table, had resolved to remove them; and to give as much publicity as possible to the affair, laid them out one by one on the top of a wall. But little perhaps did he imagine that his exploit would one day shine in the annals of science, affording testimony to the sagacity of the crows of Orkney, and the inorthodoxy of its ministers.

Rooks, undoubtedly, have a language of their own, which is well understood by the whole community. They are well known to place one of their fellows as a sentinel to watch the movements of any enemy, and warn the colony. When this sentinel utters a peculiar note, they all take flight in an opposite direction to that from which the danger is apprehended. In the words of the poet—

Their danger well the wary plunderers know,
And place a watch on some conspicuous bough.

There is a trait in the character of the rook, which is supposed to be peculiar to it, which is highly to its credit. Should any of their companions be wounded or killed by a gun, instead of being frightened away by the report, they show the greatest anxiety and sympathy for him, uttering cries of sorrow, and plainly manifest a strong desire to render him assistance by hovering over him, or sometimes making a dart into the air close up to him, apparently to try and find out the reason why he did not follow them—

———While circling round and round,
They call their lifeless tenant from the ground.

If he is wounded and can flutter along the ground, the rooks appear to animate him to make fresh exertions by incessant cries, flying a little distance before him and calling on him to follow

them. Mr Jesse says, "I have seen one of my labourers pick up a wounded rook which he had shot at for the purpose of putting him upon a scare-crow in a field of wheat, and while the poor wounded bird was fluttering in his hand, I have observed one of his companions make a wheel round in the air, and suddenly dart past him, so as almost to touch him, perhaps with a last hope, that he might still afford assistance to his unfortunate mate or companion. Even when the dead bird has been hung in *terrorum*, to a stake in the field, he has been visited by some of his former friends, but as soon as they found that the case was hopeless, they have generally abandoned that field altogether."

Rooks are not easily induced to forsake the trees on which they have been bred, and which they frequently revisit after the breeding season is over. This is shown in Hampton Court Park, where there is an extensive rookery amongst the fine lime trees, and where a barbarous and unnecessary custom prevails of shooting the young rooks.—As many as a hundred dozen of them have been killed in one season, and yet the rooks do not build in the avenue close by, in Bushy Park, which they never frequent, notwithstanding the trees are equally high and no less secure.

Rooks have a naturally sociable disposition, and are frequently found in company with the jackdaw and the starling. Even the sparrow has been known to build its nest under the protection of the crow.

It has been estimated that during the last five years the number of rooks' nests in Hampton Court Park, has been about seven hundred and fifty. We shall suppose that there are a pair of old birds and three young ones to each nest, so that the total number will be three thousand seven hundred and fifty. It is remarkable that they will not permit any of their colony to construct nests, apart from the usual line of trees, in which they have been accustomed to build. In the spring of 1832, a pair of rooks made their nest out of the ordinary line, they were permitted to go on with their labours till the nest was nearly completed, when at least fifty of their neighbours beset the diverging pair, and demolished their nest in a few minutes.

When young rooks are so fledged that they are fit to leave the nest, it is very amusing to watch the solicitude of their parents, in teaching them to fly. It is, however, some time before the young are induced to leave the spray, and during the

time they attach themselves to the vicinity of their nests, they are termed in Scotland *branchers*. By the persuasion of the parent-birds, the young are first induced to hop after them from one branch to another, while the old ones keep flying around, or advancing a little way before, and keep crying on the young to follow. These short flights are incessantly repeated, till they have acquired sufficient strength and confidence to launch forth on the elastic atmosphere.

Rooks sometimes make choice of very odd places, on which to build, and departing from the ordinary social habits of the species, a solitary pair breaks off from the colony.

We are informed by Dr Mitchell, that, a few years ago, a pair of crows built their nest between the wings of the Dragon of Bow church, London. They continued to resort to it yearly for incubation, until the steeple required repair, when they desisted from building, after their nest had been thrown down by the workmen.

The same gentleman observed either that pair or another build their nest in the spring of 1832, at the top of a large plane-tree in Wood street, close to Cheapside.

A pair of rooks from some distant place, attempted to effect a lodgement in a rookery near Newcastle, which they were driven from by the old community as intruders. They now made up their mind to take refuge in the spire of the old Exchange, and although they were subject to assaults from the other rooks, yet they contrived to secure their nest at the top of the vane: and there brought up a brood of young, undisturbed by the din of the city. The nest was subject to being turned round as often as the wind changed; but so securely was it fixed, that no breeze could blow it down. Every year afterwards, they regularly resorted to their old habitation, repaired their nest, and reared their young. In the year 1793, however, they were dislodged, as the spire was then taken down. To commemorate this singular occurrence, a small engraving the size of a watch paper, was executed, and extensively sold: copies of which are still in the hands of the curious.

A gentleman in the country had a number of very high trees round his garden; and in the spring of 1791, a pair of rooks fixed on one of them, as a proper place for their nest. This gentleman was in the habit of rising early, and often witnessed

amusing combats between the crows and a cat, who ascended and attempted to destroy their brood. One morning an obstinate conflict took place, but the cat was forced to quit the field, and took shelter under a hedge, apparently with the design of watching a favourable opportunity to renew the assault. The crows watching her motions, continued to make a threatening noise over her head, but knowing that it was unsafe to offer battle on the ground, one of them lifted a stone from the garden, and perched with it on a tree in the hedge, beneath which grimaldin lay in ambush. At length puss crept along the bottom of the hedge, but the rook kept exactly above her, on one of the projecting branches, and when she left her hiding place, the rook hovered over her in the air, and let the stone drop on her back.

An instance of sagacity in the crow, which is similar to the above, is told by Dr Darwin. He had a friend on the Northern coast of Ireland, who noticed above a hundred crows at once, feeding on muscles. The plan they took to break them, was each to lift one in their bills, and ascend about thirty or forty yards in the air, and from thence let the muscles drop upon stones; and thus they secured the animal inhabitants.

During the war between Augustus Cæsar and Mark Antony, when the world looked with anxiety which way fortune would turn herself, an indigent man in Rome, in order to be prepared to take advantage of which ever way she might incline, determined on making a bold hit for his own advancement, had recourse to the following ingenious expedient. He applied himself to the training of two crows with such diligence, that he brought them the length of pronouncing distinctly, the one a salutation to Cæsar, and the other to Antony. When Augustus returned conqueror, the man went out to meet him, with one of the crows perched on his hand, which every little while exclaimed, *Salve, Cæsar, Victor, Imperator!** Augustus, greatly struck, and delighted with so novel a circumstance, purchased the bird of the man for a sum which immediately raised him to opulence.

The following singular example of affecting sagacity and social feeling, by which rooks are characterised, is mentioned by Dr

* Hail, Cæsar, Conqueror, and Emperor.

Percival, in his "dissertations." "A large colony of rooks had subsisted many years in a grove on the banks of the river Irwell, near Manchester. One serene evening I placed myself within view of it, and marked with attention the various labours, pastimes, and evolutions, of this crowded society. The idle members amused themselves with chasing each other through endless mazes, and in their flight they made the air sound with an infinitude of discordant noises. In the midst of these playful exertions, it unfortunately happened that one rook, by a sudden turn, struck his beak against the wing of another. The sufferer instantly fell into the river. A general cry of distress ensued. The birds hovered with every expression of anxiety over their distressed companion. Animated by their sympathy, and perhaps by the language of animals, known to themselves, he sprang into the air, and by one strong effort reached the point of a rock which projected into the river: the joy became loud and universal; but alas, it was soon changed into notes of lamentation, for the poor wounded bird, in attempting to fly towards his nest, dropped again into the river and was drowned, amid the moans of his whole fraternity."

"The crow is easily raised and domesticated; and it is only when thus rendered unsuspicious of, and placed on terms of familiarity with man, that the true traits of his genius and native disposition fully develope themselves. In this state, he soon learns to distinguish all the members of the family; flies towards the gate, screaming at the approach of a stranger; learns to open the door by alighting on the latch; attends regularly at the stated hours of dinner and breakfast, which he appears punctually to recollect; is extremely noisy and loquacious; imitates the sounds of various words pretty distinctly; is a great thief and hoarder of curiosities, hiding in holes, corners and crevices, every loose article he can carry off, particularly small pieces of metal, corn, bread and food of all kinds; is fond of the society of his master, and will know him after a long absence, of which the following is a remarkable instance, and may be relied on as a fact: a very worthy gentleman who was (1811) living in the Genesee country, but who, at the time alluded to, resided in the Delaware, a few miles below Easton, had raised a crow, with whose tricks and society he used frequently to amuse himself. This crow lived long in the family; but at length disappeared, having, at

was then supposed, been shot by some vagrant gunner, or destroyed by accident. About eleven months after this, as the gentleman, one morning, in company with several others, was standing on the river's bank, a number of crows happening to pass by, one of them left the flock, and flying directly towards the company, alighted on the gentleman's shoulder, and began to gabble away with great volubility, as one long absent friend naturally enough does on meeting with another. On recovering from his surprise, the gentleman instantly recognized his old acquaintance, and endeavoured, by several civil but sly manœuvres, to lay hold of him, but the crow not altogether relishing so much familiarity, having now had a taste of the sweets of liberty, cautiously eluded all his attempts, and suddenly glancing his eye on his distant companions, mounted in the air after them, soon overtook, and mingled with them, and was never afterwards seen to return.

The following notice of the rook from the "Magazine of Natural History," proves the rook to be a predatory animal, at least on some occasions. "As I was passing through Chandos Street, Cavendish Square, London," says the narrator, "soon after six o'clock this morning (31st May 1830,) my attention was attracted by a rook flying low, near the walls of some out-buildings, in which were many holes occupied by sparrows' nests. He directed his flight to one of these holes, into which he thrust himself as far as possible. It was evident that he was attempting to reach something with his bill; but, apparently, he did not succeed, for he shortly withdrew himself from this hole, and flew to another, into which he intruded himself in the same manner. From this second hole he retired almost immediately, bearing in his beak one of the callow brood. He flew with his spoil to a high chimney at the corner house, followed for a short distance by ten or twelve sparrows clamouring loudly at such an atrocious robbery; and one sparrow, probably the parent, ventured to pursue even to the chimney-top, as if determined to assail the fell destroyer; but both the rook and the sparrow quickly disappeared behind the chimney-pot, and prevented any further observation."

THE HOODED CROW.

THESE birds, which are known also by the name of the *Royston crow*, are very common in the Highlands of Scotland, where they are indigenous. In England they are migratory, arriving in October, and departing about the beginning of Spring. In Scotland they build chiefly on precipices by the sea-shore. Though it is exceedingly difficult to shoot them, they are continually skulking in the neighbourhood of human dwellings, where they make free with the food laid down for poultry and dogs. They have great assurance, so to speak, and very little courage. They care little for the face of man, if he does not seem to be in quest of them; but if he manifests the slightest hostile intention, they are off instantly. Their sight is very keen, as is exemplified by this fact among others,—that if they be within gun-shot of a house, and any person stand, even in the middle of a room, and raise his arm in an aiming attitude, the crows are scared away. They venture sometimes to build their nests by the sides of well-frequented roads; but are very apt to forsake them, if they happen to attract the attention of passers by.

Their ordinary food is shell fish,—and substances cast ashore by the tide. They are, however, like all the crow kind, changeable in their eating, and nothing seems to come amiss to them when pressed by hunger.

“I have,” says Selby, “repeatedly observed one of these birds soar up to a considerable height in the air, with a cockle or muscle in its bill, and then drop it upon the rock, in order to obtain the included fish. Dr Fleming, in his ‘Philosophy of Zoology,’ considers instinct, in this degree, as bordering closely upon intelligence; as implying a notion of power, and also of cause and effect.” The hooded crow is about the size of the rook, but handsomer and more sprightly; and can at once be distinguished by the greyish, hoar-frost looking cape, or hood with which the shoulders of the former are covered. Its flight also is habitually more agile than that of the rook.

To the list of crows may be added those described by Wilson, in his *American Ornithology*,—viz. the *Fish crow* and *Clark’s crow*. We might have previously stated, that where trees are wanting, the rook will betake itself to the ground, or to rocks

and ruins. In fact, most birds are able to adapt themselves to circumstances in building their nests.

THE JACKDAW.

These birds prefer making their nests in ruined edifices, and certainly their shrill tones and congregated flights add a solemnity to such scenes. Painters have taken fine advantage of this association. When we see the daws clustering on wing, above some ancient and dilapidated edifice, its desertion strikes us at once and more deeply. Let us, however, exchange reflection for anecdote.

A Jack-daw belonging to the son of the ostler of the Bush at Staines, was constantly fed and taken care of by him, till he became quite his "familiar friend," so much so, indeed, that the circumstance created wonder in the vicinity. So assured was the *Steed-brusher*, of the faith and devotion of his feathered acquaintance, that on one particular occasion, as he was setting off from Staines to Hounslow on horseback, he made a wager of two bowls of punch, that the bird would obey the call of his master, and follow his route. He mounted, and exclaiming, "Come, Jack, I'm going," put his horse in motion. In a short time the bird's wings were extended, and he attended the progress and return of his feeder, leaving not the shadow of a plea, for the non-payment of the bet.

At the village of Gilmerton, near Edinburgh, many years ago, I lived with a friend for a few days. Mr William Wright, a publican in the village, had a tame Jackdaw. On one occasion, half a glass of whisky was left on the kitchen table, when Jackie flew up, and began to drink the spirits, which seemed to please his palate so much, that he drank an unusual quantity. In a few minutes, symptoms of intoxication began to appear; first by the drooping of his wings, and his eyes becoming half closed. He then staggered in his walk, which had the most ludicrous effect imaginable. He moved towards the edge of the table, apparently with the intention of flying down to the ground: but he seemed either to have lost the power of motion in his wings, or he was afraid to trust him

self in the air, in such a state, as he was at the time. He stood, seemingly meditating what he should do, all the while hanging like a drunk man, about to lose his balance : till at last his eyes fairly closed, and he fell on his back, with his legs in the air, exhibiting every sign of death. I attempted to put some water down his throat, but he had lost all sensibility, and he could not swallow it. He was now rolled into a piece of flannel, and put into a box and placed on the shelf of a locked closet. All the family, with whom he was a great pet, never expected to see him on his legs again. Next morning about 6 o'clock, I opened the closet door, expecting to find poor Jackie defunct, but he had extricated himself from the flannel, and as soon as the door was opened, he flew out, and made his way as quickly as possible to the back court, where there was a basen-shaped stone, for the fowls drinking out of ; from which he drank copiously, and this he repeated several times during the day, and was nothing the worse for his getting drunk. But he never again would taste whisky.

The jackdaw is a bird of great intelligence ; is easily domesticated, and becomes very familiar. We had a pair in Fife, which flew all over our grounds, and even to the villages around, yet never strayed. They slept in a box at a back window of the house. They entered the house on all occasions, and even allowed themselves to be handled. They caught in their bill, with great adroitness, pieces of bread which were thrown to them, they followed the different members of our family through all the walks of the garden and shrubbery, and would perch on a tree near the different seats, and chatter, while any person whom they were following rested. One of them pronounced several words very distinctly, such as *wee kaeie*, (little *kae*, the Scottish provincial name,) and *come here*. They were much addicted to stealing, and carried off to their box every thing they could get hold of. Besides this, they were very mischievous ; they would attend the gardener at his work, and as soon as he removed to another part of the garden, they pulled up by the roots every thing he had planted ; such as young cabbages, or leeks, flower roots, &c. They had particular pleasure in turning over the leaves of a book, or pulling the whole thread off a bobbin.

What is very remarkable is, that although Jackdaws, which

were not domesticated, built in the chimneys of the house, in which no fires were used, yet these tame ones never joined them, nor were they ever known to quarrel.

The following is from Mr Rennie's work on the Architecture of Birds : A singular instance of burrowing, apparently similar to that of the American Owl, has been recorded by White, of the jackdaw, from the information of a gentleman at Chichester. " In a warren joining to his outlet, many daws build every year in the rabbit-burrows under ground. The way he and his brothers used to take their nests, while they were boys, was by listening at the mouths of the holes ; and if they heard the young ones cry, they twisted the nest out with a forked stick. I should never have suspected the daws of building in holes on the flat ground. Another very unlikely spot is made use of by daws as a place to breed in, and that is Stonehenge. These birds deposit their nests in the interstices between the upright and the impost stones of that amazing work of antiquity ; which circumstance alone speaks the prodigious height of the upright stones, that they should be tall enough to secure those nests from the annoyance of shepherd boys, who are always idling round that place." We are informed by a gentleman who has visited Stonehenge frequently, and at different seasons, that his experience does not confirm White's statement. He never saw a jackdaw near these extraordinary ruins. Sonnini thinks that jackdaws prefer a church to nestle in before any other building of similar height and construction. This is evidently a mere fancy, which the playful humour of our poet Cowper has turned to account.

" A great frequenter of the church,
Where, Bishop-like, he finds a perch,
And dormitory too."

THE CORNISH CHOUGH.

The chough is a scarce species in Britain. It is found among the precipices of the western shores of Scotland, and among the Hebrides. In general appearance, it resembles the crow, but is somewhat less.

"It is," says Selby, "a bird of a lively gait, and of a restless and crafty disposition, and, like many of the crow genus, its attention is particularly caught by glittering objects. Its natural food consists principally of insects, even the smallest of which it is enabled to reach in the crevices of rocks, and the joints of walls, by the aid of its slender and sharp-pointed bill. It also eats grain and berries. It has been remarked that the chough will not alight upon the turf, if it can possibly avoid it, always preferring gravel, stones, or walls. It is easily domesticated, when begun with at an early period." The chough is met with on the rocky shores of Cornwall, from which place it takes its particular appellative with us. It is also found in Wales,—but is much more abundant on the continent.

THE MAGPIE AND ITS CONGENERS.

THIS division of the crow tribe is composed of birds, which, with a very different plumage from those we have been describing, possess nearly the same moral and intellectual characteristics, but in a slight degree, proportioned to their inferior size.

THE MAGPIE.

“ The tall tangled hedgerow, the fir grove, or the old well-wooded inclosure, constitutes the delight of the magpie, as there alone its large and dark nest has any chance of escaping observation. We here annually deprive it of these asylums, and it leaves us ; but it does not seem to be a bird that increases much any where. As it generally lays eight or ten eggs, and is a very wary and cunning creature, avoiding all appearance of danger, it might be supposed that it would yearly become more numerous. Upon particular occasions, we see a few of them collect ; but the general spread is diminished, and as population advances, the few that escape will retire from the haunts and persecutions of man. These birds will occasionally plunder the nests of some few others ; and we find in early spring the eggs of our out-laying domestic fowls frequently dropped about, robbed of their contents. That the pie is a party concerned in these thefts we cannot deny, but to the superior audacity of the crow we attribute our principal injury. However the magpie may feed on the eggs of others, it is particularly careful to guard its own nest from similar injuries, by covering it with an impenetrable canopy of thorns, and is our only bird that uses such a precaution, securing it from all common depredation, though not from the hand of the bird-nesting boy. When a hatch is effected, the number of young demand a larger quantity of food than is easily

obtained, and whole broods of our ducklings, whenever they stray from the yard, are conveyed to the nest. But still the "maggot" is not an unuseful bird, as it frees our pastures of incredible numbers of grubs and slugs, which lodge themselves under the crusts formed by the dung of cattle. These birds, with their strong beaks, turn over, and catch the lurking animals beneath, and then break them to search for more; by which means, during winter, they will spread the entire droppings in the fields; and by spring I have had, especially under the hedges, all this labour saved to me by these assiduous animals."*

We have the following authentic story, in Lady Morgan's Italy.—"A noble lady of Florence, resided in a house which stands still opposite the lofty Doric column which was raised to commemorate the defeat of Pietro Strozzi, and the taking of Sienna, by the tyrannic conqueror of both. Cosmo, the First, lost a valuable pearl necklace, and one of her waiting-women, (a very young girl) was accused of the theft. Having solemnly denied the fact, she was put to the torture, which was then a *plaisir* at Florence. Unable to support its terrible infliction, she acknowledged that "she was guilty," and, without further trial, was hung. Shortly after, Florence was visited by a tremendous storm; a thunder-bolt fell on the figure of Justice, and split the scales, one of which fell to the earth, and with it fell the ruins of a magpie's nest, containing the pearl necklace. Those scales are still the haunts of birds, and I never saw them hovering round them, without thinking of those 'good old times,' when innocent women could be first tortured, and then hung on suspicion."

We are informed by Plutarch of a magpie, belonging to a barber at Rome, which could imitate every word it heard uttered. It happened one day, that some trumpets were sounded before the shop door, and for some days afterwards, the magpie was quite mute, and appeared pensive and melancholy. This change in its manners, greatly surprised all who knew it, and it was supposed that the sound of the trumpets had so completely stunned the poor bird, that it was deprived of both voice and hearing. It soon appeared, however, that this was not the case, for Plutarch says, the bird had been all the while occupied in pro-

found meditation, studying how to imitate the sound of the trumpets, which had made a deep impression on him ; and at last, to the astonishment of all its friends, it broke its long silence, by a very perfect imitation of the flourish of the trumpets it had heard ; observing with great accuracy, all the repetitions, stops, and changes. But this turned out an unfavourable lesson, for the magpie forgot every thing else, and never afterwards attempted another imitation, but that of the trumpets.

Sir William Jardine mentions a pair of magpies of a cream-colour, which were hatched at a farm steading in Eskdale, Dumfriesshire.

“ On the road,” says the Reverend John Hall, “ between Huntly and Portsoy, I observed two magpies hopping round a gooseberry bush, in a small garden near a poor-looking house, in a peculiar manner, and flying out and into the bush. I stepped aside to see what they were doing, and found, from the poor man and his wife, that these magpies, several succeeding years, had built their nest and brought up their young in this bush, and that the foxes, cats, hawks, &c. might not interrupt them, they had barricaded not only their nest, but had encircled the bush with briars and thorns, in a formidable manner, nay, so completely, that it would have cost even a fox, cunning as he is, some days’ labour to get into the nest.

“ The materials in the inside of the nest were soft, warm, and comfortable, but all on the outside so rough, so strong, and firmly entwined with the bush, that without a hedge-knife, hatch-bill, or something of the kind, even a man could not, without much pain and trouble, get at their young, for from the outside to the inside of the nest extended as long as my arm.

“ They fed the young brood with frogs, mice, worms, or anything living, within their power to subdue. It once happened that one of the magpies having seized a rat, which it was not able to kill, one of the young ones came out of the nest to its mother and the rat, while they were fighting on the outside of the bush, and assisted her to kill it, which they were not able to accomplish, till the father, arriving with a dead mouse, also lent his aid.

“ These magpies had been faithful to one another for several summers, and drove off their young as well as every one else that attempted to take possession of their nest. This they

carefully repaired and fortified in the Spring, with strong rough prickly sticks that they sometimes brought by uniting their force, one at each end, pulling it along when they were not able to lift it from the ground.”*

THE JAY.

This beautiful bird is indigenous to Britain. It frequents wooded districts, where acorns, beech-mast, and occasionally garden fruits constitute its food. Its voice is very disagreeable, and as it is a shy bird, this is seldom atoned for by a sight of its brilliant plumage. The following passage from Mr Knapp's admirable *Journal of a Naturalist* introduces the Jay, in that self-denying character which many birds exhibit when tending their young.

“The common jay affords a good example,” says Mr Knapp, “of this temporary departure from general character. This bird is always extremely timid, when its own interest or safety is solely concerned; but no sooner does its hungry brood clamour for supply, than it loses all this wary character, and becomes a bold and impudent thief. At this period it will visit our gardens, which it rarely approaches at other times, plunder them of every raspberry, cherry, or bean, that it can obtain, and will not cease from rapine as long as any of the brood or the crop remains. We see all the nestlings approach, and, settling near some meditated scene of plunder, quietly await a summons to commence. A parent bird from some tree, surveys the ground, then descends upon the cherry, or into the rows, immediately announces a discovery, by a low but particular call, and all the family flock into the banquet, which having finished by repeated visits, the old birds return to the woods, with all their chattering children, and become the same wild, cautious creatures they were before. Some of our birds separate from their woods as soon as they are able to provide for themselves; but the jay and its family associate during all the autumn and winter months, taking great delight in each other's company, and only

* Travels in Scotland.

separate to become founders of new establishments. We see them in winter under the shelter of tall hedges, or on the sunny sides of woods and copses, seeking amid the dry leaves for acorns, or the crab, to pick out the seeds, or for the worms and grubs hidden under cowdung; feeding in perfect silence, yet so timid and watchful, that they seldom permit the sportsman to approach them. When disturbed, they take shelter in the depth of the thicket, calling to each other with a harsh and loud voice, that resounds through the covert. The Welsh call this creature '*screech y coed*,' the screamer of the wood." Selby pronounces the jay "one of the handsomest of our indigenous birds," and Knapp is of a contrary opinion as we shall see by resuming his remarks. "The jay is a very heavy, inelegant bird. Its general plumage is sober and plain, though its fine browns harmoniously blend with each other: but the beautiful blue-barred feathers, that form the greater coverts of the wings, distinguish it from every other bird, and in the days when feather-work was in favour with our fair countrywomen, were in such request, that every gamekeeper, and schoolboy brother with his Christmas gun, persecuted the poor jay through all his retirements, to obtain his wings."

"Although the usual notes of this bird are harsh and grating to the ear, yet, we are told by Montagu, that it is capable of uttering a pleasant though low sort of song in the spring time, introducing at intervals the bleating of a lamb, mewing of a cat, the note of a hawk, the hooting of an owl, and even the neighing of a horse, and these imitations given with such exactness as to deceive many who have heard them. The jay is frequently tamed, not only on account of the beauty of its plumage, but for the facility with which it learns to articulate words, and to imitate a variety of sounds. Bewick mentions one that could perform the noise made by the action of a saw, and another that ad been taught to hound a cur dog, on the approach of cattle."*

There are several varieties of this species, such as the *red-billed jay* of China, and the *blue-jay* of America:—the latter is minutely described by Wilson, whose account we have already inserted in the notes to Goldsmith.

* Selby's Illustration of British Ornithology. Part first, p. 80.

THE TOUCAN.

This bird, so remarkable for the large dimensions of its bill, is a native of South America. "The Toucan," says Mr Rennie, "is omnivorous, feeding (like the magpie) on young birds and eggs, and on fruits. For the former purpose the bill is admirably adapted, enabling it to delve into the deep and narrow nests of the South American birds, while the delicacy of the nerves enables it, like the snipe, to search out its prey. The bill is equally well fitted for feeding on soft tropical fruits. A living specimen of this bird, kept for seven years in the possession of Mr Vigors, afforded full opportunity of ascertaining the correctness of these statements.'"

The monkeys and the toucan are perpetually at war with each other.—They often assail him in his nest, that they may dislodge him for the sake of the contents. They do not pretend to make capture of an old bird, being too well acquainted with the formidable power of its bill. These rencontres are very amusing to a spectator, exhibiting as they do, cunning and artifice opposed to honest courage and indomitable strength. Cases occur, however, in which the monkey's ingenuity enables him to gain his point, and laugh in his own way at his dupe.

* The Architecture of Birds, p. 133.

THE WOODPECKER, AND ITS CONGENERS.

THE GREEN WOODPECKER.

THIS bird inhabits the woods of England and Scotland which echo from time to time with its far-heard cry. It feeds principally on the insects to be found in the bark of trees, or in the dry wood of such as are decayed. This mode of life it is well adapted for, by the strength of its bill and the length and slenderness of its tongue with which it extracts the insects from their holes. By means of the peculiar formation of its claws it is enabled to run up a tree with great rapidity. Its cry when long continued is supposed to foretell rain, on which account, it has in some places obtained the name of the *Rain bird*.—The *Spotted Woodpecker* is not so numerous as the former species. They inhabit the same localities and are very similar in their habits.—The *Lesser Spotted Woodpecker* is rarer still, and not widely diffused. Its habits resemble those of its congeners.

Audubon says, the *Ivory Billed Woodpecker* “nestles earlier in the spring than any other species of its tribe. I have observed it boring a hole for that purpose in the beginning of March. The hole is, I believe, always made in the trunk of a live tree, generally an ash or a hag-berry, and is at a great height. The birds pay great regard to the particular situation of the tree, and the inclination of its trunk; first, because they prefer retirement, and again, because they are anxious to secure the aperture against the access of water during beating rains. To prevent such a calamity the hole is generally dug immediately under the junction of a large branch with the trunk. It is first bored horizontally for a few inches, then directly downwards, and not in a spiral manner as some people have imagined. According to cir-

cumstances, this cavity is more or less deep, being sometimes more than ten inches, whilst at other times it reaches three feet downwards into the core of the tree. I have been led to think that these differences result from the more or less immediate necessity under which the female may be in depositing her eggs, and again have thought that the older the woodpecker is, the deeper does it make its hole. The average diameter of the different nests which I have examined was about seven inches within, although the entrance, which is perfectly round, is only just large enough to admit the bird."

"With the exception of the mocking-bird," says Audubon, "I know no species so gay and frolicsome, as the *Red-headed Woodpecker*. Indeed, their whole life is one of pleasure. They find a superabundance of food everywhere, as well as the best facilities for raising their broods. The little labour which they perform is a source of enjoyment, for it is undertaken either with an assurance of procuring the nicest dainties, or for the purpose of excavating a hole for the reception of themselves, their eggs, or their families. They do not seem to be much afraid of men, although they have scarcely a more dangerous enemy. When alighted on a fence-stake by the road, or in a field, and one approaches them, they gradually move sideways out of sight, peeping now and then to discover your intention; and when you are quite close and opposite, lie still until you are past, when they hop to the top of the stake, and rattle upon it with their bill, as if to congratulate themselves on the success of their cunning. Should you approach within arm's length, which may frequently be done, the woodpecker flies to the next stake or the second from you, bends his head to pop, and rattles again, as if to provoke you to a continuance of what seems to him excellent sport. He alights on the roof of the house, hops along it, beats the shingles, utters a cry, and dives into your garden to pick the finest strawberries he can discover."

THE WRYNECK.

This genus consist of three species, and forms a connecting link between the cuckoo and woodpeckers. It has been termed

the *snake-bird* from its habit of hissing when its nest is intruded upon. Its plumage is very fine, and it would make a very respectable appearance in our woods, but for the ludicrous twist which it so often gives to its neck. It feeds for the most part on ants and their larvæ. The author of the Ornithological Dictionary, captured a female wryneck which he kept for some time and had thus an opportunity of observing its habits. He put a quantity of earth into the cage, in which he kept it, containing ants and their eggs. These it came at very dexterously with its long tongue, which retained them on its surface by means of the glutinous substance with which it is naturally provided. The body remains motionless when it eats, but the head is turned quickly from side to side.

“The wryneck visits us annually, but in very uncertain numbers, and from some unknown cause or local changes, in yearly diminishing quantities. In one short season after its arrival we hear its singular monotonous tone at intervals through half the day. This ceases, and we think no more about it, as it continues perfectly mute; not a twit or a chirrup escapes to remind us of its presence during all the remainder of its sojourn with us, except the maternal note or hush of danger, which is a faint, low, protracted hissing, as the female sits clinging by the side or on the stump of a tree. Shy and unusually timid, as if all its life were spent in the deepest retirement away from man, it remains through the day on some ditch bank, or basks with seeming enjoyment, in any sunny hour, on the ant hills nearest to its retreat; and these it depopulates for food. When disturbed it escapes by a flight precipitate and awkward, hides itself from our sight, and, were not its haunts and habits known, we should never conjecture that this bustling fugitive was our long-forgotten spring visitant the wryneck. The winter or spring of 1818 was, from some unknown cause, singularly unfavourable for this bird. It generally arrives before the middle of April; and its vernal note, so unlike that of any of its companions, announces its presence throughout all the mild mornings of this month, and part of the following; but during the spring of that year it was perfectly silent, or absent from us.”*

* Journal of a Naturalist, 3d. edit. p. 191.

THE NUTHATCH.

There is but one species of this bird in Europe. It is only partially distributed in England—but remains all the year through. It is distinguished from the woodpeckers by its power of running downwards along the trunk of a tree, as well as upwards, which last feat is all that the woodpeckers can perform. It is not migratory in any climate.

“I had never seen the little bird,” says a correspondent in *London's Magazine of Natural History*, “called the nuthatch, until one day when I was expecting the transit of some wood-pigeons under a birch tree, with my gun in my hand, I observed a little ash-coloured bird squat himself on one of the large lateral trunks over my head, and after some observations, began to tap loudly, or rather solidly upon the wood, and to proceed round and round the branch, it being clearly the same thing to him whether his nadir or zenith were uppermost. I shot, and the bird fell; there was a lofty hedge between us, and when I got over, he had removed himself. It was some time before I secured him; and I mention this, because the manner in which he eluded me was characteristic of his cunning. He concealed himself in holes at the bottom of a ditch, so long as he heard the noise of motion; and when all was still he would scud out and attempt to escape. A wing was broken, and I at length got hold of him. He proved small but very fierce, and his bite would have made a child cry out. The elbow joint of his wing being thoroughly shattered, and finding that he had no other wound, I cut off the dangling limb, and put him into a large cage with a common lark. The wound did not in the least diminish his activity, nor yet his pugnacity, for he instantly began to investigate all means of escape, he tried the bores, then tapped the wood-work of the cage, and produced a knocking sound which made the room re-echo; but after finding his efforts vain—he then turned upon the lark, ran under him with his gaping beak to bite, and effectually alarmed his far more gentle and elegant antagonist. Compelled to separate them, the nuthatch—for this bird I discovered him to be, by turning over the leaves of an *Ornithologia*—was put into a smaller cage of plain oak-wood and wire. Here he remained all night; and the next

morning his knocking, or tapping with his beak, was the first sound I heard, though sleeping in an apartment divided from the other by a landing place. He had food given to him, minced chicken and bread crumbs, and water. He ate and drank with a most perfect impudence, and the moment he had satisfied himself, turned again to his work of battering the frame of his cage, the sound from which, both in loudness and prolongation of noise, is only to be compared to the efforts of a fashionable footman, upon a fashionable door, in a fashionable square. He had a particular fancy for the extremities of the corner pillars of the cage; on these he spent his most elaborate taps, and, at this moment, though he only occupied the cage a day, the wood is pierced and worn like a piece of old, worm-eaten timber. He probably had an idea, that if these main-beams could once be penetrated, the rest of the superstructure would fall, and free him. Against the doorway he had also a particular spite, and once succeeded in opening it; and, when, to interpose a further obstacle, it was tied in a double knot with a string, the perpetual application of his beak quickly unloosed it. In ordinary cages, a circular hole is left in the wire for the bird to insert his head to drink from a glass; to this hole the nuthatch constantly repaired, not for the purpose of drinking, but to try to push out more than his head; but in vain, for he is a thick bird, and rather heavily built, but the instant he found the hole too small, he would withdraw his head, and begin to dig and hammer at the circle, where it is rooted in the wood, with his pick-axe of a beak, evidently with a design to enlarge the orifice. His labour was incessant, and he ate as largely as he worked; and, I fear, it was the united efforts of both that killed him. His hammering was peculiarly laborious; for he did not peck as other birds do, but, grasping his hold with his immense feet, he turned upon them as upon a pivot, and struck with the whole weight of his body; thus assuming the appearance, with his entire form, of the head of a hammer; or, as I have sometimes seen birds, in mechanical clocks, made to strike the hour by swinging on a wheel. We were in hopes that when the sun went down, he would cease from his labours, and rest; but no; at the interval of every ten minutes, up to nine or ten in the night, he resumed his knocking, and strongly reminded us of the coffin-maker's nightly and dreary occupation. It was said by one of us, 'he is

nailing his own coffin ;' and so it proved. An awful fluttering in the cage, now covered with a handkerchief, announced that something was wrong ; and we found him at the bottom of his prison, with his feathers ruffled, and nearly all turned back. He was taken out and for some time he lingered away in convulsions, and occasional brightenings up. At length he drew his last gasp ; and will it be believed, that tears were shed on his demise ? The fact is, the apparent intelligence of his character, the speculation in his eye, the assiduity of his labour, and his most extraordinary fearlessness and familiarity, though coupled with fierceness, gave us a consideration for him that may appear ridiculous to those who have never so nearly observed the ways of an animal as to feel interested in his fate. With us it was different."

Mr White in his *Natural History of Selborne*, says, that the knocking of the nuthatch can be heard at the distance of a furlong, and that he frequently placed nuts in the joints of a gate for this bird, which were quickly penetrated by its beak, and the kernel extracted.

THE BIRD OF PARADISE.

This beautiful bird is distinguished from all others, by the two middle feathers of the tail, which are little more than a filament, except at the point near the root. The head is small, and covered with brilliant tints, the neck is of a fawn colour ; and the body is brown, tinged with gold. Its name is said to have arisen from its being observed coming far out to sea, as if to welcome the mariner to his haven, and assure him of favourable weather. It has been superstitiously supposed never to alight at all, and that its sustenance was the dew of Heaven. The following stanzas from the *City of the Plague*, are probably founded on this fable.

" 'Tis said there is a wondrous bird
That ne'er alights to fold her wings,
But far up in the sky is heard
The music which the creature sings.

“ On plumes unwearied, soft and bright
She floateth still in hymning mirth,
For ever in her native light
Unstained by any touch of earth.”

The bird of Paradise is an inhabitant of some of the Asiatic islands, among whose stately forests, “it sports unharm’d its harmless life away.”

THE CUCKOO AND ITS VARIETIES.

THE cuckoo visits us in April, and leaves us by the beginning of July. The delightful associations connected with that "sunny visit," are well expressed in these anonymous verses :—

" When Spring with her girdle of roses comes forth,
Like a fair blushing bride from the clime of the north,
How man's heart bounds with gladness his gay bosom through,
At her charms, and the song of her merry cuckoo ;
Cuckoo, and cuckoo, and cuckoo !

We have gazed on bright forms, such as angels above
Might leave heaven, and come down on this dull earth to love ;
But no face is like nature's to man's longing view,
When she laughs out in Spring with her joyous cuckoo ;
Cuckoo, and cuckoo, and cuckoo !

We have felt,—who has not ?—as we clasp'd the fair hand,
How the pulse bounds to bliss at the dear one's command ;
But are those warm pulsations more thrilling or new
Than sweet Spring when she dances, and warbles cuckoo ?
Cuckoo, and cuckoo, and cuckoo !

Though we've look'd in their eyes, until feeling arose,
And the white of the cheek took the red of the rose,
Who would say that those eyes were of tenderer blue
Than Spring's heav'n when she comes with her merry cuckoo ?
Cuckoo, and cuckoo, and cuckoo !

Who could swear,—I would not,—that their voices are clear
As nature's sweet speech at the spring of the year ?
This we know, if far softer, their tongues are less true
Than hers is when she speaks by her herald cuckoo ;
Cuckoo, and cuckoo, and cuckoo !

We have drank of the wine cup,—who has not ?—in mirth,
And believ'd nothing like it is found upon earth,
But that draught would be bitter and dark, if ye knew
The rich cup which she sends by her Hebe cuckoo ;
Cuckoo, and cuckoo, and cuckoo !

We have read the rare books of the wise ones of old,
And perchance touch'd their wand that turns all things to gold ;
But their tomes and their spells are as old things to new,
When fair nature's are shown by her envoy cuckoo ;
Cuckoo, and cuckoo, and cuckoo !

Woman's love's not like hers ;—rosy wine makes us gay,
But like beauty, it leads the pure bosom astray ;
Fly them both,—tear your volumes,—your spells break in two,
And woo nature, and sing with her shouting cuckoo,—
Cuckoo, and cuckoo, and cuckoo !”

There is much variety of opinion among naturalists, respecting the incubation of the cuckoo. Mr Hoy, of Stoke Nayland, Suffolk, made some interesting observations on that subject, in 1832. We give the following account by him, from Loudon's Magazine of Natural History. “A pair of wagtails (*motacilla alba*), fixed their nest early in April, among the ivy which covers one side of my house, and reared and took off their young. A few days after the young birds had left the nest, I observed the old birds apparently collecting materials for building, and was much amused at seeing the young running after the parent birds, with imploring looks and gestures, demanding food ; but the old birds with roots, or pieces of grass in their bills, seemed quite heedless of them, and intent on their new habitation. Their motions were narrowly watched by a female cuckoo, which I saw frequently near the place ; but the wagtails had placed their second nest within a yard of the door, and so well concealed among some luxuriant ivy, that the cuckoo being often frightened away, was not able to discover the nest. The intruder being thus thwarted in its design, the birds hatched their second brood, which was accidentally destroyed a few days after. In about ten days, they actually commenced a third nest, within a few feet of the situation of the second, in safety. I have repeatedly taken the cuckoo's eggs from the wagtail's nest in this locality ; it has a decided preference to it. I do not recollect finding it in any other, excepting, in two instances, once in the hedge-warbler's, and another time in the redstart's nest. In this vicinity, whether the wagtail selects the hole in a pollard tree, a cleft in a wall, or a projecting ledge of a bridge, it does not often escape the prying eye of the cuckoo, as, in all these situations, I have frequently found either eggs or young. The cuckoo appears to possess the

power of retaining its eggs for some time after it is ready for extrusion. On one occasion, I had observed a cuckoo during several days, anxiously watching a pair of wagtails building; I saw the cuckoo fly from the nest two or three times before it was half completed; and at last, the labour of the wagtails not going on, I imagine, so rapidly as might be wished, the cuckoo deposited its egg before the lining of the nest was finished. The egg, contrary to my expectation, was not thrown out; and on the following day, the wagtail commenced laying, and, as usual, the intruder's egg was hatched at the same time as the rest, and soon had the whole nest to itself. I once observed a cuckoo enter a wagtail's nest, which I had noticed before to contain one egg; in a few minutes the cuckoo crept from the hole, and was flying away with something in its beak, which proved to be the egg of the wagtail, which it dropt on my firing a gun at it. On examining the nest, the cuckoo had only made an exchange, leaving its own egg for the one taken. In May, 1829, I found two cuckoos' eggs in the same nest, and depended on witnessing a desperate struggle between the parties, but my hopes were frustrated by some person destroying it."

The egg of the cuckoo is less than that of the hedge-sparrow; thus proving the fitness of all natural bodies to the ends for which they were intended. Were we unacquainted with the fact, that the cuckoos do not, like other birds, incubate their own eggs, we would marvel at their great disproportion, compared with the size of the bird. There is no doubt some wise end to be fulfilled in this singular economy in the habits of cuckoos, which has yet eluded human scrutiny.

The disappearance of the foster-nestlings from the nest in which a cuckoo is hatched, says Mr Rennie in his "Architecture of Birds," is satisfactorily accounted for by the observations of the late Dr Jenner, to whom the world was indebted for the inestimable discovery of vaccination. "On the 18th of June, 1787," says he, "I examined the nest of a hedge-sparrow (*Accentor modularis*), which then contained a cuckoo and three hedge-sparrows' eggs. On inspecting it the day following, the bird had hatched; but the nest then contained only a young cuckoo and one hedge-sparrow. The nest was placed so near the extremity of a hedge, that I could distinctly see what was going forward in it; and, to my great astonishment, I saw the

young cuckoo, though so lately hatched, in the act of turning out the young hedge-sparrow. The mode of accomplishing this was very curious; the little animal, with the assistance of its rump and wings, contrived to get the bird upon its back, and making a lodgment for its burthen by elevating its elbows, clambered backwards with it up the side of the nest till it reached the top, where, resting for a moment, it threw off its load with a jerk, and quite disengaged it from the nest. It remained in this situation for a short time, feeling about with the extremities of its wings, as if to be convinced whether the business was properly executed, and then dropped into the nest again. With these, the extremities of its wings, I have often seen it examine, as it were, an egg and nestling before it began its operations; and the nice sensibilities which these parts seem to possess, seemed sufficiently to compensate the want of sight, which as yet it was destitute of. I afterwards put in an egg, and this, by a similar process, was conveyed to the edge of the nest and thrown out. These experiments I have since repeated several times, in different nests, and have always found the young cuckoo disposed to act in the same manner. In climbing up the nest, it sometimes drops its burthen, and thus is foiled in its endeavours; but after a little respite the work is resumed, and goes on almost incessantly till it is effected. The singularity of its shape is well adapted to these purposes; for, different from other newly-hatched birds, its back, from the shoulders downwards, is very broad, with a considerable depression in the middle. This depression seems formed by nature for the design of giving a more secure lodgment to the egg of the hedge-sparrow, or its young one, when the young cuckoo is employed in removing either of them from the nest. When it is about twelve days old this cavity is quite filled up, and then the back assumes the shape of nestling birds in general." "It sometimes happens (which disproves Pliny's statement) that two cuckoos' eggs are deposited in the same nest, and then the young produced from one of them must inevitably perish. Two cuckoos and one hedge-sparrow were hatched in the same nest, and one hedge-sparrow's egg remained unhatched. In a few hours afterwards a contest began between the cuckoos for the possession of the nest, which continued undetermined till the next afternoon, when one of them, which was somewhat superior in size, turned

out the other, together with the young hedge-sparrow and the unhatched egg. The combatants alternately appeared to have the advantage, as each carried the other several times to the top of the nest, and then sunk down again, oppressed by the weight of the burthen ; till at length, after various efforts, the strongest prevailed, and was afterwards brought up by the hedge-sparrow."

" Here," then, resumes Mr Rennie, " we have the high authority of one of the most celebrated scientific men of his day for these very remarkable circumstances, which clearly explain the origin of the mistakes of Aristotle and Pliny, as well as of many modern writers, who, having ascertained the disappearance of the eggs and young of the cuckoo's foster-parents, conceived (plausibly enough, though erroneously) that they were devoured by the young cuckoo. We have another authority for the facts above stated, no less high upon such a subject than the preceding :—

" I was so far fortunate," says Colonel Montagu, " as to have ocular proof of the fact related by Dr Jenner, of a young cuckoo turning out of a hedge-sparrow's nest a young swallow I had put in, for the purpose of experiment. I first saw it, when a few days old, in the hedge-sparrow's nest in a garden close to a cottage, the owner of which assured me the hedge-sparrow had four eggs when the cuckoo dropped in a fifth ; that on the morning the young cuckoo was hatched two young hedge-sparrows were also excluded, and that, on his return from work in the evening, nothing was left in the nest but the cuckoo. At five or six days old I took it to my house, where I frequently saw it throw out the young swallow for four or five days after. This singular action was performed by insinuating itself under the swallow and with its rump forcing it out of the nest with a sort of jerk. Sometimes, indeed, it failed, after much struggle, by reason of the strength of the swallow, which was nearly full feathered ; but after a small respite from the seeming fatigue, it renewed its efforts, and seemed continually restless till it succeeded. At the end of the fifth day this disposition ceased, and it suffered the swallow to remain unmolested."

" On the 30th of June," says Blackwall, " I took a young cuckoo that was hatched in a titlark's nest on the 28th : seven days after the old birds had quitted that neighbourhood ; and

this nestling, while in my possession, turned both young birds and eggs out of its nest, in which I had placed them for the purpose, and gave me an opportunity of contemplating at leisure the whole process of this astonishing proceeding, so minutely and accurately described by Dr Jenner. I observed that this bird, though so young, threw itself backwards with considerable force when anything touched it unexpectedly."

"M. Montbeillard," adds Mr Rennie, "following the ancients it would appear, tells us that, as the male cuckoo instinctively devours the eggs of birds, the female must be careful to conceal hers, and therefore she must not return to the spot where she has deposited one, lest the male discover it; and must choose the most concealed foster-nest, and the most remote from his usual haunts. It is also on the same account, he thinks, that if she has two eggs (six is the usual number), she must intrust them to different nurses. But this evidently proves too much; for if the female can discover a nest to leave her egg in it, may not the male make the same discovery after the egg is laid? Besides, so far from choosing the most concealed nests, or the most remote from the haunts of the male, the hedge-sparrow's is the one most commonly selected, and this is perhaps the least concealed of any of the small birds. Dr Jenner tells us, he has known as many as four of these nests in one paddock, each containing a cuckoo's egg at the same time, and in the very hedges, no doubt, where the male supplied himself with a daily breakfast of caterpillars, which is his natural food, and not eggs. Indeed, we much question whether either sex of the cuckoo sucks eggs at all. Even M. Montbeillard himself takes some pains to prove that the female does not devour the eggs of the dupe-dam. Amongst others, he particularizes—five eggs of a titmouse (*Parus*), with one of the cuckoo; five eggs of the redbreast, with one of the cuckoo; four eggs of the nightingale, with one of the cuckoo; and two eggs of the titmouse under a young cuckoo, but which were not hatched."

A person named Moore, residing at Goring near Worthing, had in his possession in the year 1828, a cuckoo which was taken from its nest the preceding year. It poured forth its well known call at the usual season, and is a rare, and perhaps solitary instance of a cuckoo surviving in this country after the usual period at which these birds migrate.

“During the summer of 1830,” says a correspondent to Mr Loudon’s Magazine of Natural History,—“the days were wet and chilly, and the nights clear and calm; so that the night was, in fact, more pleasant than the day: so much so, that I frequently walked out after supper, and as frequently heard both the cuckoo and the nightingale from ten till eleven o’clock; but on two succeeding evenings, the 4th and 5th of June, the moon being about full, and shining with unclouded majesty, I heard, about the witching hour of night, both the cuckoo and the nightingale; and on the 9th, as I was returning from a party with a friend, a little after midnight, we were highly gratified in hearing a trio, with all the native melody of the grove, performed by the cuckoo, the nightingale, and the sedge warbler.”

The continental naturalists have raised a controversy respecting the species of the common cuckoo, which is found to vary considerably in the colour of its plumage, one being thence called the red and another the grey cuckoo; the former supposed to be the *Cuculus hepaticus* of Latham, and the latter the *C. canorus* of Linnæus. M. Payrandeau, however, states distinctly, on the authority of a series of specimens, as well as of repeated dissection, that both the male and female young of the *Cuculus canorus*, before the first moult, have the same colour; that, after the first moult the males have a deep olive ash colour, and the red spots have begun to disappear; in the females, on the contrary, the red spots become brighter and larger: that, at the third moult, the red spots on the male disappear altogether, while in the female they continue to the most advanced age, when it puts on the plumage of an old male, of which change M. Payrandeau possesses a specimen of a bird undergoing this change. M. Temminck, again, whose authority is very high, regards the red cuckoo as the young of the grey cuckoo, of one year old; but Vieillot, the father of the French ornithologists, as well as Meyer, Jules, Delamothe, and Baillon of Abbeville, agree with M. Payrandeau.

THE PARROT AND ITS CONGENERS.

THE parrot tribe are interesting on account of the facility with which they may be taught a correct imitation of the human voice. Some anecdotes of these birds might lead to the supposition, that they understand the meaning of the words they utter ;—but candour compels us to declare our suspicion, that all such anecdotes are calumnious, or at least, overcharged accounts of very curious coincidences. The poor parrots are, for aught we have experienced to the contrary, as innocent of meaning in their curses as in their blessings. It is very common to hear the same bird uttering indiscriminately, the elegances of a drawing-room and the coarsenesses of a ship-board education. It is rather curious, by the way, that the great author whose arrangements we follow in the present work, should have been satirically compared to the bird of which we are speaking. Garrick, in allusion to the striking contrast between the writings, and the conversation of Goldsmith, says that he—we quote from memory,—is one,

“ Who wrote like an angel, and talk'd like poor Poll.”

We shall present the reader with such anecdotes of the parrot tribe, as we have been able to supply, not limiting ourselves to those which illustrate a particular theory,—but affording him materials for forming an unbiassed opinion.

In October, 1822, the following announcement appeared in the London papers. “ A few days ago, died, in Half Moon Street, Piccadilly, the celebrated parrot of Colonel O'Kelly. This singular bird sang a number of songs in perfect time and tune. She could express her wants articulately, and give her orders in a manner nearly approaching to rationality. Her age was not known ; it was, however, more than thirty years, for previous to that period, Colonel O'Kelly bought her at Bris-

tol for one hundred guineas. The Colonel was repeatedly offered five hundred guineas a year for the bird, by persons who wished to make a public exhibition of her ; but this, out of tenderness to the favourite, he constantly refused." This bird could not only repeat a great many sentences, but also answer a number of questions put to her. When she sung, she beat time with all the regularity of a scientific performer ; and she seemed so much alive to musical melody, that if she mistook a note by accident, she would again revert to the bar, where she had committed the error, still, however, waiting time, and finishing her song with much accuracy.

Locke, in his " Essay on the Human Understanding," quotes the following anecdote of a conversing parrot from the " Remains of what passed in Christendom from 1672 to 1679," in such a way as to lead us to suppose that, however incredible the story, yet he believed it. When Prince Maurice was governor of Brazil, he was informed of an old parrot, that was much spoken of, in consequence of being able to converse like a rational creature ; at least, it could answer the questions that were put to it. It was at a distance from the seat of government, but having heard so much of its merits, the curiosity of the Viceroy became roused, and he directed that it should be sent for, that he might in person examine into the fact. When it was first introduced into the room where the prince sat, with several Dutch gentlemen, it immediately exclaimed in the Brazilian language, " What a company of white men are here !" Pointing to the prince, they asked, " Who is that man ?" the parrot answered, " Some general or other." When the attendants carried it up to him, he asked through the medium of an interpreter (as he was ignorant of its language), " Whence do you come ?" the parrot answered, " From Marignan." The prince asked, " To whom do you belong ?" It answered, " To a Portuguese." He asked again, " What do you do here ?" It answered, " I look after chickens." The prince laughing, exclaimed, " You look after chickens ?" The parrot in answer said, " Yes, I ; and I know well enough how to do it ;" clucking at the same time, in imitation of the notes of a hen when calling together her young.

The author of the memoirs in which the account is contained, says, that he had it directly from Prince Maurice, who observed, that although the parrot spoke in a language he did not under-

stand, yet he could not be deceived, for he had in the room, both a Dutchman, who spoke Brazilian, and a Brazilian who spoke Dutch; and that he asked them separately and privately, and both agreed exactly in their account of the parrot's discourse.

M. Bonnet, in the "*Contemplations de la Nature*," gives the following interesting account of two birds of this tribe. "A solitary gentleman, whose principal delight had been in observing the unsophisticated conduct of animals, and contrasting it with the corrupt manners of man, which differ so widely from those of nature, gives the following account of the affection of two birds. They were of that kind of paroquet, called Guinea sparrows, and kept in a square cage, such as is usually appropriated to that species of bird. The cup which contained their food, was placed in the bottom of the cage. The male was almost continually seated on the same perch with the female. They sat close together, and viewed each other from time to time with evident tenderness. If they separated, it was but for a few moments, for they hastened to return and resume their situation. They commonly took their food together, and then retired to the highest perch of the cage. They often appeared to engage in a kind of conversation, which they continued for some time, and seemed to answer each other, varying their sounds, and elevating and lowering their voices. Sometimes they seemed to quarrel, but those emotions were but of a momentary duration, and succeeded by additional tenderness. This happy pair thus passed four years in a climate greatly different from that in which they had before lived. At the end of that period, the female fell into a state of languor, which had all the appearance of old age. Her legs swelled and grew knotty. It was no longer possible that she could move to take her food, but the male, ever attentive and alert in whatever concerned her, brought it in his bill, and emptied it into hers. He was in this manner her vigilant purveyor, during the space of four months. The infirmities of his dear companion increased daily. She became unable to sit upon the perch; she remained, therefore, crouched at the bottom of the cage, and from time to time made a few ineffectual efforts to regain the lowest perch. The male, who ever remained attentive and close by her, seconded these her feeble efforts with all his power. Sometimes he seized with his beak the upper part of her wing, by way of drawing her

to him ; sometimes he took her by the bill and endeavoured to raise her up, repeating these efforts many times. His motions, his gestures, his countenance, his continual solicitude, every thing in this interesting bird, expressed an ardent desire to aid the weakness of his mate, and to alleviate her sufferings. But the scene became still more interesting, when the female was on the point of expiring. The unhappy male went round and round the dying female without ceasing. He redoubled his assiduities and tender cares. He tried to open her bill, with a design to give her nourishment : His emotion increased from instant to instant. He paced and repaced the cage with the greatest agitation, and, at intervals, uttered the most plaintive cries. At other times he fixed his eyes upon the female, and preserved the most sorrowful silence. It was impossible to mistake these expressions of his grief or despair, the most insensible of mankind would have been moved. His faithful consort at last expired. From that moment he himself languished, and survived her but a few months."

Leo, son of the Emperor Basilius Macedo, was accused by Theodorus Sandabarenius, a Monk, of having a design upon the life of his father, and was thereupon cast into prison, from which he was freed through the instrumentality of a parrot. The Emperor, upon a certain occasion, entertained some of the greatest nobles of his court. They were all seated, when a parrot which was hung up in the hall (in a mournful tone) cried out, "Alas ! alas ! poor Prince Leo." It is very probable, that he had frequently heard courtiers passing, bewailing the Prince's hard fortune in those terms. He frequently repeated these words, which at last so affected the courtiers that they could not eat. The Emperor observed it, and entreated them to make a hearty repast ; when one of them with tears in his eyes, said, "How should we eat, Sire, when we are thus reproached by this bird of our want of duty to your family ? The brute animal is mindful of its Lord ; and we that have reason, have neglected to supplicate your Majesty in behalf of the prince, whom we all believe to be innocent, and to suffer under calumny." The Emperor, moved by these words, commanded them to fetch Leo out of prison, admitted him to his presence, and restored him first to his favour, and then to his former dignities.

We are told by Comte de Buffon, that his sister had a parrot which would frequently speak to himself, and seemed to fancy that some one addressed him. He often asked for his paw, and answered by holding it up. Though he liked to hear the voice of children, he seemed to have an antipathy to them, and bit them till he drew blood. He had also his objects of attachment, and though his choice was not very nice, it was constant. He was excessively fond of the cook-maid ; followed her every where, sought for her when absent, and seldom missed finding her. If she had been some time out of his sight, the bird climbed with his bill and claws to her shoulders, and lavished on her his caresses. His fondness had all the marks of close and warm friendship. The girl happened to have a sore finger, which was tedious in healing, and so painful as to make her scream. While she uttered her moans, the parrot never left her chamber. The first thing he did every day, was to pay her a visit ; and this tender condolence lasted the whole time of her confinement, when he returned to his former calm and settled attachment.

Yet all this strong predilection for the girl, would seem to have been more directed to her office in the kitchen, than to her person ; for when another cook-maid succeeded her, the parrot showed the same degree of fondness to the new comer, the very first day.

Parrots have been known not only to imitate discourse, but also to mimic gestures and actions. Scaliger saw one that performed the dance of the Savoyards, at the same time that it repeated their song. It was fond of hearing a person sing ; and when it saw any one dance, he would try to imitate them, but with a very awkward grace.

Willoughby mentions a parrot, which, when a person said to it,—“ Laugh, Poll, laugh,” it laughed accordingly, and immediately after screamed out,—“ What a fool ; to make me laugh.”

A parrot which had grown old with its master, shared with him the infirmities of age. Being accustomed to hear scarcely anything but the words, “ I am sick :” When a person asked it, “ How do you do ?” “ I am sick,” it replied with a doleful tone, stretching itself along ; “ I am sick.”

A gentleman who resided at Gosport in Hampshire, and had frequent business across the water to Portsmouth, was astonished one day on going to the beach to look for a boat, and finding

none, to hear the words distinctly repeated,—“Over, master? Going over?” (which is the manner that watermen are in the habit of accosting people when they are waiting for passengers.) The cry still assailing his ears, he looked earnestly around him, to discover from whence the voice came; when, to his great surprise, he beheld the parrot in a cage, suspended from a public-house window on the beach, vociferating the boatman’s expressions.

Buffon says, “I have seen a parrot very ridiculously employed, belonging to a distiller who had suffered pretty severely in his circumstances from an informer that lived opposite him. This bird was taught to pronounce the ninth commandment,—“Thou shalt not bear false witness against thy neighbour,” with a very clear, loud, articulate voice. The bird was generally placed in a cage over against the informer’s house, and delighted the whole neighbourhood with its persevering exhortations.”

Dr Thornton had a blue macaw, which attracted great attention at the time. This extraordinary bird was in servitude at Mr Brook’s menagerie, in Hay market. Like others of his species, he was chained by the leg, and fed upon scalded bread. Here he learned to imitate the cackling of fowls, the barking of dogs; to mimic his exhibitors, and other human sounds.

Dr Thornton bought him for fifteen guineas, to grace his museum, or botanical exhibition. When in a confined room in Bond-street, he made those screaming noises so offensive in his tribe, he seemed sulky and unhappy; but being brought to the doctor’s house, (his botanical exhibition having closed,) the doctor, from motives of humanity, as well as for experiment, took away the chain that confined him to his perch. His feet were so cramped, and the muscles so much weakened from long disuse, that he could not walk. He tottered at every step, and appeared, in a few minutes only, greatly fatigued. His liberated feet, however, soon acquired uncommon agility; his plumage grew more resplendent, and he became completely happy. No longer he indulged in screams of discontent, and all his gestures denoted gratitude. His food was now changed, and he breakfasted with the family, having toast and butter; and dined upon potatoes, hard dumplings with fruit occasionally after dinner. Like other parrots, he never drank. His smell

was uncommonly quick. He was quite acquainted with the time of meals, which he marked by a continued agitation of the wings, running up and down the pole, and uttering a pleasing note of request.

When he received his food he half opened his wings, and contracted the pupils of his eyes, and uttered a pleasing note of thankfulness. If he got any food of which he was not very fond, he took it in his left foot, and having eaten a little, threw the rest down; but if the food were nice and abundant, he carefully conveyed it to his tin reservoir, and left for another repast that which he could not consume in the meantime. He soon forgot his barbarous sounds, and imitated words; and for hours together amused himself in saying "Poll,"—"Macaw,"—"Turn him out,"—"Pretty fellow,"—"Saucy fellow,"—"what's o'clock,"—laughing, and calling out the names of the doctor's children. If any were hurt, he gave the first alarm; nor did he desist until they were attended to. The doctor's son observing the sagacity of this bird, undertook to instruct him. He taught him at word of command, to descend from his perch, and stand upon his finger; then by another order, he turned himself downwards, and hung upon the fore-finger by one foot, although the body was swung about with much violence. Being next asked—how a person should be served? the spectator waited for an answer, but the bird said nothing, and seizing his master's finger, suspended himself by his bill, like one hanging. At the desire of his master he extended his wings to show their beauty. He would then fan the spectators with his wings; he was next put on the ground, and then walked as readily backwards as forwards, with his two toes in front, and two behind. He would then clamber like a sailor up the mizen, and with his two open mandibles embraced his perch, which was nearly two inches in thickness. Placed there, he was asked—if a certain gentleman were to come near him, how he should be served. He shook his head several times, raised his wings, erected his feathers and opened his mouth, laid hold of a finger, seemingly in earnest, and kept biting it, as though he would have taken it off, opposing every resistance; and when he liberated the finger, uttered a scream. He was then asked how he would serve his master?—when he would gently bite his finger, caressed it with his beak, and tongue, and held his head down,

as expecting it to be scratched. Nor is this all: a nut being given to him, while on the lower part of his stand, he mounted the upright stick, and the nut disappeared without the spectator being able to tell how. At the word of command he presented it to the company, held it in his paw, and then cracked it. He had been taught to conceal the nut under his tongue, in the hollow of the under mandible. When a peach-stone was given to him, he found out its natural division, and after repeated efforts, he contrived to open it and eat the kernel. When any nuts were presented to him, he became all agitated; and he had so much sagacity, that, without cracking, when he took up a bad nut, he very indignantly threw it on the ground. He was remarkably fond of music; and with motions of his feet along the perch, movements of his wings, and his head moving backwards and forwards, he danced to all lively tunes, and kept exact time. If any person sung or played in wrong measure he quickly desisted.

He was very friendly to strangers, and put on a terrific appearance towards children, for fear of injury from them, and was very jealous of infants. In rainy weather the blue feathers looked green; and also in clear weather when there were vapours in the sky; hence he was an admirable weather gage. What proved a peculiar sagacity in his imitations, was, that these he effected sometimes without his voice: for example, there was a scissors-grinder, who came into the street where the bird was kept, every Friday. All parrots have a file in the inside of the upper mandible, with which they grind down the under bill, and in this they are employed for an hour every evening. This sound people usually mistake for snoring. This scraping was attempted, but the nice ear marked the difference, and he had recourse to his claws, which he struck against the perch, armed with tin, and observing the time of the turning of the wheel, he effected a most exact imitation, which he repeated every Friday. Sometimes the child's pap would be taken to the window, and beaten with the spoon: this he would immediately imitate, by striking his broad bill against the sides of his perch.

The light of candles would awaken him, and he would then dance and discriminate persons; but on being presented with sugar, or any food, he often missed it. He frequently on such occasions became anxious to be held upon the hands, to flutter

his wings ; but he never seemed to have any inclination to fly, and appeared perfectly happy in the partial liberty which he enjoyed.

The following curious instance of limited loquacity occurred with a brace of parrots in London. A tradesman who had a shop in the Old Bailey, opposite the prison, kept two parrots, for the inconvenience of his neighbours, a green disturber and a gray. The green parrot was taught to speak when there was a knock at the street door—the gray put in his word whenever the bell was rung ; but they only knew two short phrases of English a-piece, though they pronounced these very distinctly. The house in which these “ Thebans ” lived, had a projecting old-fashioned front, so that the first floor could not be seen from the pavement on the same side of the way ; and one day when they were left at home by themselves, hanging out of a window, some one knocked at the street door. “ Who’s there ? ” said the green parrot—in the exercise of his office. “ The man with the leather ! ” was the reply ; to which the bird answered with his farther store of language, which was “ Oh, ho ! ” The door not being opened immediately as he expected, the stranger knocked a second time. “ Who’s there ? ” said the green parrot again.—“ D—n you who’s there,” said the man with the leather, “ why don’t you come down ? ” to which the parrot again made the same answer, “ Oh ho ! ” This response so enraged the visitor, that he dropped the knocker, and rung furiously at the house bell ; but this proceeding brought the gray parrot, who called out in a new voice, “ Go to the gate.”—“ To the gate ? ” muttered the appellant, who saw no such convenience, and moreover imagined that the servants were bantering him. “ What gate ? ” cried he, getting out into the kennel, that he might have the advantage of seeing his interlocutor. “ New-gate,” responded the gray parrot—just at the moment when his species was discovered.

A friend of ours in Great King street Edinburgh, has a parrot, which keeps excellent time to a piano-forte, while the lady of the house is playing : this it does by a kind of chicking sound, and by a strange kind of note at other times.

Some years since, a parrot in Boston, America, that had been taught to whistle in the manner of calling a dog, was sitting in his cage at the door of a shop. As he was exercising himself

in this kind of whistle, a large dog happened to be passing the spot ; the animal imagining that he heard the call of his master turned suddenly about and ran towards the cage of the parrot. At this critical moment, the bird exclaimed vehemently, " Get out, you brute." The astonished dog hastily retreated, leaving the parrot to enjoy the joke.

A pretty complete list of the parrot tribe will be found in the notes to Goldsmith. The common division is into *macaws*, *parrots*, *lories*, (which are white), and *parakeets*. The first species are the largest ; the last the smallest.

THE PIGEON, AND ITS CONGENERS.

THE pigeon tribe are remarkable for the swiftness of their flight, and the length of time during which it can be sustained. They are strictly monogamous, and lay only two eggs, "which are incubated alternately by both sexes. The young, when first excluded, are partially covered with down, remain in the nest until they are able to fly, and are fed by the parent-birds, who disgorge into their mouths the food that has undergone a semi-digestive process in the *crop* or *craw*." They feed on grain and seeds, and sometimes, though very seldom, on fruits, among which they prefer cherries.

THE STOCK-DOVE.

Goldsmith has stated that this species is the original of our tame pigeons,—but those are now ascertained to be derived from the rock-dove. The two have indeed, been generally confounded by naturalists. The stock-dove builds its nest in excavated trees, and has been known to breed eight or nine times in the year,—so that the produce of a single pair amounts to an immense number. It is indigenous to England, but confined to certain parts, and is not to be met with in Scotland. It is very abundant in the interior forests of southern Europe; is migratory in Germany and France, and occurs also in Africa. Its colour is on the head and throat, a deep bluish gray; the feathers are shorter and stiffer than those of the rock-dove. The lower parts of the neck and breast are a pale lavender purple; the belly and back are bluish-gray.

The Rock Dove. This species nearly resembles the preced-

ing in form and size,—but is a degree more slender. The prevailing colours of each are nearly alike. The former differs in the colour of the rump, which is bluish gray, and in the rock-dove, for the most part white. The great distinction is that the latter builds in cliffs by the sea-side, and the former, as before stated, on trees, and in the interior of the country. This species is the parent-stock of our domestic pigeons, and there is certainly some analogy between the dove-cot and the cliff, which the locality of the stock-dove does not suggest.

The Turtle Dove. This bird is common in Europe,—but visits England only during the summer, when from the closest woods it pours its melancholy note. Its general colour is bluish-gray.

THE RING-DOVE.

This bird, also known by the names of wood-pigeon, and cushat, exceeds in size all the other European species. It is indigenous to Britain, and builds in wooded districts. “Many attempts,” says Mr Selby, “have been made to domesticate this species, but without success; for although they may be rendered very tame when in confinement, they will not breed either by themselves, or with the common pigeon; and, upon being set at liberty, immediately betake themselves to their natural haunts, and return no more.” The following passage gives strong authority for the ring-dove’s capability of domestication. “Salerne says that the poulterers of Orleans buy, in the season of nests, a considerable number of ring-pigeons, as well as turtle-doves and rock-pigeons, which are found nestling in churches, towers, the walls of old castles, and rocks. They are considered to be deserters from dove-cots. Buffon thinks this proves that the ring-doves, like other pigeons and turtles, can be reared in domestication, and that these may have given origin to the largest and most beautiful of the dovecot pigeons.”* On this subject, the following passage occurs in Mr White’s “Natural History of Selborne.” “I had a relation,” he says,

* The Architecture of Birds. p. 161.

“in this neighbourhood who made it a practice, for a time, whenever he could procure the eggs of a ring-dove, to place them under a pair of doves that were sitting in his own pigeon-house; hoping thereby, if he could bring about a coalition to enlarge his breed, and teach his own doves to beat out into the woods, and to support themselves by mast. The plan was plausible, but something always interrupted the success; for though the birds were usually hatched and sometimes grew to half their size, yet none ever arrived at maturity. I myself have seen these foundlings in their nest, displaying a strange ferocity of nature, so as scarcely to bear to be looked at, and snapping with their bills by way of menace. In short they always died, perhaps for want of proper sustenance; but the owner thought that by their fierce and wild demeanour they frightened their foster-mothers, and so were starved.” Upon the whole it seems likely that this fine species of pigeon is destined to baffle all attempts at its domestication. We have known many cases of fair trial, and they, without exception, lead to this conclusion. The general colour of the ring-dove is a bluish-gray.

THE TAME PIGEON, OR HOUSE DOVE.

The many varieties of the domestic pigeon, render it almost impossible to enumerate them. We shall first introduce some anecdotes of the most celebrated of these, viz. the carrier, and afterwards of the others, generally, or particularly, as the case may be.

The speed of the *Carrier pigeon* is almost incredible. The moment they are let loose, they wing their way to a great height in the clouds, and then pursue a perfectly direct course, to the place of their destination: and never descend till they have reached it.

This pigeon has long been employed in transporting letters from one part to another. The first mention of them being so employed, is by Ovid in his *Metamorphoses*, who informs us that *Taurosthenes* gave notice to his father at *Ægina*, that he had been victor at the Olympic Games, by means of a pigeon

stained with purple, which conveyed to him the intelligence on the evening of the same day.

According to Pliny, carrier pigeons were used by Mark Antony, during the siege of Modena, to correspond with the besieged.

When the French and Venetians invested the city of Ptolemais, in Syria, and the besieged were about to surrender; they observed a pigeon flying over them, and conjecturing it was charged with letters to the garrison, the whole army simultaneously shouted most vehemently, which so stunned the poor aerial post, that it fell to the ground, and being taken up, they discovered a letter under its wing from the Sultan, assuring them, "that within three days he would be with them, followed by an army sufficient to put to flight their besiegers." They substituted for this letter another, to this effect, "that the Sultan being hard pressed at home, was unable to send the garrison succour, and that they must consequently look to their own safety the best way they could." With this letter the pigeon, who had now recovered, was let away, bearing these melancholy tidings: on receiving which they immediately surrendered. On the third day the Sultan arrived with his promised force of a very powerful army, and was much mortified to find the garrison in the hands of the Christians.

In the year 1675, carrier pigeons were more successfully employed at the siege of Leyden. That garrison was induced to stand out, from information which was conveyed to it by these birds. They made such an obstinate resistance, that the enemy at length withdrew. The Prince of Orange, on the siege being raised, decreed that these pigeons should be maintained at the public expense, in consequence of the signal service they had rendered the city, and that when they died, they should be embalmed, and preserved as a perpetual mark of gratitude.

The employment of carrier pigeons is still very common in the East, more particularly in Egypt, Syria and Arabia. A basket full of them is generally sent from the grand seraglio, where they are bred, to every Bashaw, and should any insurrection, or other cause require immediate intelligence, they are through the means of these extraordinary messengers, enabled to give the most speedy intelligence of the event.

There is an annual competition of a society of pigeon fanciers held at Antwerp, this animal being much propagated throughout Flanders.

The use of this bird was successfully cultivated to a considerable extent in the United States, about ten years ago, by a gang of lottery-gamblers. These carried intelligence from New York to Philadelphia, or *vice versa*, on important tickets being drawn, so that great fraud by that means was practised.

The carrier pigeon is only used in Britain, by the *gentlemen* of the *fancy*, who inherit the art of training them, and applying their services to particular uses, from the celebrated heroes, who fell at Tyburn, and similar noted places.

A courier takes a whole day in proceeding from Alexandria to Aleppo, which distance is daily performed by carrier pigeons, with despatches from the consul in four hours.

Attachment to the place of their nativity, and especially to the place where they have brought up their young, makes these animals so useful to mankind. When a young pigeon is first trained, it is taken about a mile from home, in a basket, and there let loose; which is doubled every time till twenty or thirty miles, and after this, it may be taken to the most distant part of a country, from whence it will return home with certainty.

On the 8th of September 1827, was caught a carrier pigeon, near the Isle of France, in the Indian ocean, with the following inscription tied to its tail:—

“ I’ve seen the Betsey far at sea,
And where you soon may find it;
Whatever name your ship may be,
Please write her name behind it.

Brig Betsey, Captain Robert Smith, at sea, latitude 34. 13 South, longitude 51. 8 West, from Buenos Ayres bound to London. This is to ascertain the distance, and courses this bird may fly, from this until it may be caught; and you will oblige me by inserting it in any of the public papers.—George Lord.”

The bird was caught in the American Ship Flora, from Calcutta, bound to Philadelphia, and arrived at Liverpool from Philadelphia.

A carrier pigeon was killed on its passage from Scanderoon to Aleppo. The letter conveyed by it, instead of reaching the person for whom it was intended, fell into the hands of a European merchant of a different nation. It contained information of the excessive price of gall-nuts, the most valuable article of commerce procured from Aleppo. The merchant who had thus obtained the notice, immediately bought up all the gall-nuts he could find, and by this means acquired at once a considerable fortune. The pigeons have been known to perform the journey in two hours and a half, the distance between the two places being about seventy miles. Since the above occurrence, the practice of using carrier pigeons has been discontinued, in these places.

In the year 1819, at the annual competition at Antwerp, one of thirty-two pigeons belonging to that city which had been conveyed to London, and there set at liberty, made the transit back in six hours! The distance in a straight line is one hundred and eighty miles.

In July 1829, some extraordinary bets were taken, regarding the speed of the carrier pigeon; of which the following were the results, which are striking manifestations of the great velocity with which this bird flies.

The steam boat from Rotterdam, on the 7th August 1829, has brought the result of the Maestricht wagers, the principal of which has been lost, though only by a few minutes, as one of the pigeons did arrive in six hours and a quarter from the time of leaving England, and this in spite of a continued heavy rain, which fell during the whole time. The minor wagers have been won, the second pigeon arriving in seven hours, the third in seven hours and ten minutes, the fourth in seven hours and a half; and in four days, more than twenty of the pigeons had reached Maestricht. The experiment is an exceedingly interesting one, as illustrating the instincts of this remarkable bird, and a repetition of it is, it is said, shortly to take place. The first pigeon must have travelled, assuming that it took a straight line, at the rate of forty-five miles an hour.

In October, 1803, Mr Nimmo, of George-street, Manchester, sent down to Salisbury a pigeon from his dove-cote, to be despatched with a billet round its neck, the next day, at twelve o'clock precisely, in order to ascertain what dependance could

be placed on pigeons, in case of extraordinary expedition being necessary. The bird arrived with the billet round its neck, seven minutes past three in the afternoon—a distance of eighty-three miles in three hours and seven minutes.

An Innkeeper at Cheltenham, had a pigeon, which arrived at the age of twelve years, when his partner, who had a numerous offspring by him, deserted her mate. He seemed deeply affected by her inconstancy, but made no new alliance. Two years he remained widowed and forsaken, when at last his faithless partner returned, and wished to share his domicile. She tried every scheme to gain admittance, and to restore affection in her mate without effect, and when she became unsufferably importunate, he pecked her severely, and drove her off: but in the course of the night she contrived to effect a lodgement. By dawn of day the male bird seemed so far reconciled as to allow her a share of his abode. But her repentance was of short duration, for she died soon afterwards. The old pigeon seemed sensible that by her dissolution he was placed more in a state of liberty, than when she had voluntarily deserted him: he immediately took wing, and returned in a few hours afterwards with a new partner.

“An odd thing,” says Mrs Piozzi, in her observations in a Journey through Italy, “of which I was this morning witness, has called my thoughts away to a curious train of reflections upon the animal race, and how far they may be made companionable and intelligent. The famous Bertoni, so well known in London by his long residence among us, and from the undisputed merit of his compositions, now inhabits his native city, and being fond of dumb creatures, took for his companion a pigeon; one of the few animals which can live at Venice, where scarcely any quadrupeds can be admitted, or would exist with any degree of comfort to themselves.

“This creature has, however, by keeping his master company, obtained so perfect an ear and taste for music, that no one who sees his behaviour can doubt for a moment of the pleasure he takes in hearing Mr Bertoni play and sing; for as soon as he sits down to the instrument Columbo begins shaking his wings, perches on the piano-forte, and expresses the most indubitable emotions of delight. If, however, he or any one else strikes a note false, or makes any kind of discord upon the keys, the

pigeon never fails to show evident tokens of anger and distress ; and if teased too long, grows quite enraged ; pecking the offender's legs and fingers in such a manner, as to leave no doubt of the sincerity of his resentment. Signora Cecilia Guiliani, a scholar of Bertoni's, who has received some overtures from London theatre lately, will, if she ever arrives there, bear testimony of the truth of an assertion very difficult to believe, and to which I should hardly myself give credit, were I not a witness to it every morning that I choose to call and confirm my own belief. A friend present protested he should be afraid to touch the harpsichord before so nice a critic, and although we all laughed at the assertion, Bertoni declared he never knew the bird's judgment fail ; and that he often kept him out of the room for fear of his affronting or tormenting those who came to take musical instructions.

"With regard to other actions of life, I saw nothing particular in the pigeon, but his tameness and strong attachment to his master ; for though not unwinged, and only clipped a very little, he never seeks to range away from the house, or quit his master's service, any more than the dove of Anacreon.

While his better lot bestows
Sweet repast, and soft repose ;
And, when feast and frolic tire,
Drops asleep upon the lyre."

Mr John Lockman relates a similar story of the effect of music upon a pigeon, in some reflections concerning operas, &c. prefixed to his musical drama of *Rosalinda*. Being at the house of Mr Lee, a gentleman who lived in Cheshire, and whose daughter was a fine performer on the harpsichord, he observed a pigeon, which, whenever the young lady played the song of "*Sperisi*," in Haull's opera of *Ametus*, (and this song only) would descend from an adjacent dove-house, to the room window where she sat, and listen to it apparently with the most pleasing emotions, and when the song was finished, it always returned immediately to the dove-house.

"This puts me in mind," says Mr Jesse, "of a circumstance which lately happened at Chalk Farm, near Hampton. A man, set to watch a field of pease which had been much preyed upon by pigeons, shot an old cock pigeon who had long been an inha-

bitant of the farm. His mate, around whom he had for many a year cooed, and nourished from his own crop, and assisted in rearing numerous young ones, immediately settled on the ground by his side, and showed her grief in the most expressive manner. The labourer took up the dead bird, and tied it to a short stake, thinking that it would frighten away the depredators. In this situation, however, his partner did not forsake him, but continued, day after day, walking slowly round the stick. The kind-hearted wife of the bailiff of the farm at last heard of the circumstance, and immediately went to afford what relief she could to the poor bird. She told me, that on arriving at the spot, she found the hen bird much exhausted, and that she made a circular beaten track round the dead pigeon, making now and then a little spring towards him. On the removal of the dead bird the hen returned to the dove-cot,

Like to a pair of loving turtle doves,
That could not live asunder day or night."

SHAKSPEARE

BIRDS OF THE SPARROW KIND.

WE are now come to an extensive class of birds, among which are comprehended those which by their melody enhance the charms of nature in the season of flowers and sunshine, and stir the heart of man with gratitude to that Providence whose praises they seem to utter, as they rejoice in the renewed beauty of the earth. The reader will no doubt expect us to be very interesting in this department of our anecdotes, and we are almost sure he will not be disappointed. We venture to take it for granted that he has hitherto found our manner and matter rather agreeable than otherwise. On the strength of this supposition we cheerfully resume our pen, after a short rest.

The present class of birds is separated into two divisions. The first consists of those which have the bill slender, somewhat bent at the point, and notched towards the extremity. They are also, for the most part, distinguished by having the outer and middle toes in contact as far as the first joint. The second division consists of those which have the bill more or less conical, and the toes distinct. We shall speak of each, in the order prescribed by Goldsmith.

THE THRUSH AND ITS CONGENERS.

Goldsmith is very succinct under this head, and when we consider, well as he writes on every occasion, how much more impressive he is when guided by personal observation, we regret that he has not said more about the blackbird, for example, and that he has passed the song-thrush almost without mention. These are well known birds it is true—but so are crows, and we all recollect in how novel a way he describes a rookery which he could see from his chamber-windows in the temple.

THE SONG THRUSH.

This is the sweet bird whose cream-white neck and mottled breast we have often caught a difficult glimpse of through the summer foliage, as he poured forth delicious music. "Where a thrush is," says the author of the *Isle of Palms*, "we defy you to anticipate his song in the morning. He is indeed an early riser. By the way, chanticleer is far from being so. You hear him crowing away from shortly after midnight, and, in your simplicity, may suppose him to be up, and strutting about the premises. Far from it;—he is at that very moment perched in his polygamy, between two of his fattest wives. The sultan will perhaps not stir a foot for several hours to come; while all the time the thrush, having long ago rubbed his eyes, is on his topmost twig, broad awake, and charming the ear of dawn with his beautiful vociferation. During mid-day he disappears and is mute; but again, at dewy even, as at dewy morn, he pours his pipe like a prodigal, nor ceases sometimes when night has brought the moon and stars."

A writer in the *Magazine of Natural History*, tells us that at Whitley, a small village near his residence in England, is a deserted house, and near it a shed where the gardener of the place showed him a thrush's nest on a cross-beam near the wall. The young ones were out, when a person stole in and carried them off. This is a curious fact, seeing that the usual and appropriate haunts of the thrush were close at hand. There is no accounting for such a departure from natural habit.

The following affecting instance of devoted friendship on the part of a thrush, is recorded by Mr Knapp in his *Journal of a Naturalist*. We quote also the excellent reflections which he has subjoined. "We observed this summer," says Mr Knapp, "two common thrushes frequenting the shrubs on the green in our garden. From the slenderness of their forms, and the freshness of their plumage, we pronounced them to be birds of the preceding summer. There was an association and friendship between them, that called our attention to their actions; one of them seemed ailing, or feeble from some bodily accident; for though it hopped about, yet it appeared unable to obtain sufficiency of food: its companion, an active sprightly bird,

would frequently bring it worms, or bruised snails, when they mutually partook of the banquet ; and the ailing bird would wait patiently, understand the actions, expect the assistance of the other, and advance from his asylum upon its approach. This procedure was continued for some days, but after a time we missed the fostered bird, which probably died, or by reason of its weakness met with some fatal accident. We have many relations of the natural affection of animals ; and whoever has attended to the actions of the various creatures we are accustomed to domesticate about us, can probably add many other instances from their own observation. Actions, which are in any way analogous to the above, when they are performed by mankind, arise most commonly from duty, affection, pity, interest, pride ; but we are not generally disposed to allow the inferior orders of creation the possession of any of these feelings, except perhaps the last : yet when we have so many instances of attachment existing between creatures similar and dissimilar in their natures, which are obvious to all, and where no interest can possibly arise as a motive ; when we mark the varieties of disposition which they manifest under uniform treatment, their various aptitudes and comprehensions, sensibility or inattention to sounds, &c., it seems but reasonable to consider them as gifted with latent passions ; though being devoid of mind to stimulate or call them into action by any principle of volition or virtue, how excited to performance we know no more than we do the motives of their bodily actions ! The kindnesses and attentions which the maternal creature manifests in rearing its young, and the assistance occasionally afforded by the paternal animal during the same period, appear to be a natural inherent principle, universally diffused throughout creation ; but when we see a sick or maimed animal supplied and attended by another which we suppose gifted with none of the stimuli to exertion that actuate our conduct, we endow them by this denial with motives with which we ourselves are unacquainted ; and at last we can only relate the fact, without defining the cause.”*

A pair of thrushes hatched their young so late as the 15th of September 1828, in the court of the Royal Military asylum, Chelsea. It is remarkable that they chose for their nestling

* Journal of a Naturalist, third edit. p. 208.

place one of the lower boughs of an elm, immediately over the gymnastic exercise ground, and in the midst of the noise and violent action of hundreds of boys, besides the frequent rolling of drums and all other military music daily. The young flew, being protected, while in the nest, by a special order of the commandant.

THE MISSEL THRUSH.

The missel thrush is the largest of the sparrow-kind. It is indigenous to Britain, and resembles the common thrush in appearance—but is less widely diffused, and rare even in the localities which it frequents. Its song, though inferior to that of the preceding, bears a considerable resemblance to it. Even as early as Christmas the missel thrush has been heard to sing. It is possessed of great courage, and will stoutly defend its nest against the smaller birds of prey. Authorities differ regarding its vocal powers, as the following extract shows.

“The approach of a sleety snow-storm,” says Mr Knapp, “is always announced to us by the loud untuneful voice of the missel thrush as it takes its stand on some tall tree, like an enchanter calling up the gale. It seems to have no song, no voice, but this harsh predictive note; and it in a great measure ceases with the storms of spring. We hear it occasionally in autumn, but its voice is not then prognostic of any change of weather. The missel thrush is a wild and wary bird, keeping generally in open fields and commons, heaths, and unfrequented places, feeding upon worms and insects. In severe weather it approaches our plantations and shrubberies, to feed on the berry of the misseltoe, the ivy, or the scarlet fruit of the holly or the yew; and should the redwing or the fieldfare presume to partake of these with it, we are sure to hear its voice in clattering and contention with the intruders, until it drives them from the place, though it watches and attends, notwithstanding, to its own safety. In April it begins to prepare its nest. This is large and so openly placed, as would, if built in the copse, infallibly expose it to the plunder of the magpie and the crow, which at this season prey upon the eggs of every nest they can find. To avoid

this evil it resorts to our gardens and our orchards seeking protection from man, near whose haunts those rapacious plunderers are careful of approaching: yet they will at times attempt to seize upon its eggs even there, when the thrush attacks them, and drives them away with a hawk-like fury; and the noisy warfare of the contending parties occasionally draws our attention to them. The call of the young birds to their parents for food is unusually disagreeable, and reminds us of the croak of a frog. The brood being reared, it becomes again a shy creature, abandons our homesteads, and returns to its solitudes and heaths."*

We have just seen a letter by the Reverend Mr Bree of Allesley Rectory, to the Editor of the Magazine of Natural History, part of which we shall quote, as coming in appropriate connection with the foregoing extract. "The bird," says Mr Bree, "is undoubtedly to be classed among the number of our songsters, and when he sings best, he is far from a contemptible musician. Its ordinary song is frequently to be heard in the winter, and early in spring. I am surprised, therefore, to find the excellent author of *The Journal of a Naturalist*, stating that 'it seems to have no song, no voice, but a harsh predictive note.' Bewick says that it 'begins to sing early, often on the turn of the year, in blowing stormy weather; whence, in some places, it is called the *storm cock*.—Besides its ordinary song, the bird occasionally favours us with another and far superior performance, as I ascertained in the following manner:—Some years ago, in the spring, my attention was arrested day after day by the song of a bird near my residence, which I supposed to be that of a blackbird, as it more nearly resembled the note of that bird than any other. Wishing to ascertain whether this was the case, I resolved, if possible, to get a sight of the bird itself; which, to my surprise, turned out to be, not the blackbird, as I had supposed, but the missel thrush."

THE BLACKBIRD.

With a melancholy pleasure, we write the name of this de-

* Journal of a Naturalist, p. 249.

lightful vocalist. Years pass away and lead into forgetfulness many of our joys and sorrows, and will ultimately cause them all to be forgotten. Meanwhile we shall not easily lose the remembrance of "the time, the clime, the spot," where first we heard the blackbirds song.—"There he flits along"—again we quote the minstrel of the Palms,—"upon a strong wing, with his yellow bill visible in distance, and disappears in the silent wood. Not long silent. It is a spring-day in our imagination,—his clay-wall nest holds his mate at the foot of the silver-fir, and he is now perched upon its pinnacle. That thrilling hymn will go vibrating down the stem till it reaches her brooding breast. The whole vernal air is filled with the murmur and the glitter of insects,—but the blackbird's song is over all other symptoms of love and life, and seems to call upon the leaves to unfold into beauty. It is on that one tree-top, conspicuous among many thousands on the fine breast of wood, where, here and there, the pine mingles not unmeetly with the prevailing oak,—that the forest minstrel sits in his inspiration."

Mr Bouchier, communicates the following curious particulars, through the medium of the Magazine of Natural History, for September 1831. "Within half a mile of my residence," Wold Rectory, near Northampton, "there is a blackbird which crows constantly, and as accurately as the common cock, and nearly as loud; as it may, on a still day, be heard at the distance of several hundred yards. When first told of the circumstance, I conjectured that it must have been the work of a cock pheasant, concealed in a neighbouring brake; but, on the assurance that it was nothing more or less than a common blackbird, I determined to ascertain the fact with my own eyes and ears; and this day I had the gratification of getting close to it, seated on the top bough of an ash tree, and pursuing with unceasing zeal its unusual note. The resemblance to the crow of the domestic cock is so perfect, that more than one in the distance were answering it. It occasionally indulged in its usual song; but only for a second or two; resuming its more favourite note; and once or twice it commenced with crowing, and broke off in the middle into its natural whistle. In what way this bird has acquired its present propensity I am unable to say, except that as its usual haunt is near a mill where poultry are kept, it may have learned the note from the common fowl."

THE REDWING.

This bird is a periodical visitant with us, and arrives upon our shores sometime during the month of October. They go about in flocks, keeping the open fields, or the woods, according as the weather is mild or cold. Their favourite food is insects and worms—but they feed also upon the fruits of the white thorn, and wild rose. The name of this species has been given on account of the deep red of the under wing-coverts. The upper part of the body is brown—the belly pure white. Vast numbers are shot during a snowy season.

THE FIELDFARE.

The Fieldfare is like the former, a periodical visitant, coming later and remaining longer. "When the fieldfare first arrives, its flesh is dark, thin, and scurfy; but, having fed a little time in the hedges, its rump and side veins are covered with fat.—Perfectly gregarious as the fieldfare is, yet we observe every year, in some tall hedge-row, or little quiet pasture, two or three of them, that have withdrawn from the main flocks, and there associate with the blackbird and the thrush. They do not appear to be wounded birds, which from necessity have sought concealment and quiet, but to have retired from inclination; and I have reason to apprehend that these retreats are occasionally made for the purpose of forming nests, though they are afterwards abandoned without incubation."* These stragglers collect in the month of April, and follow the regular migrants. The fieldfare, like the redwing, is sought after by the sportsman in severe weather, and great numbers destroyed. Its colour is deep brown on the upper part of the back; the tail is black; the breast yellow; middle of the belly and chin white.

* Journal of a Naturalist, p. 261.

THE RING OUZEL.

This bird is migratory—but, unlike the preceding, it visits us in spring, betaking itself to the wildest mountain-districts. Its song resembles that of the missel thrush, and it sings from the top of some rock or stone. It is a shy bird—but will resolutely defend its young. Colour on the upper parts black-grey, the same on the under—with the exception of a white crescent on the breast, which, in a front view seems to encircle the neck, and hence, no doubt, the name of this bird.

THE WATER OUZEL.

This bird, termed also the European dipper, and provincially, the water-piet, &c. is a native of Great Britain. It may be often seen on the brink of an unfrequented stream, or on a stone in the middle, and it vanishes with an arrow-like dip, and silent as a shadow into the water, as soon as it is disturbed, or observes its prey. In such situations Mr Selby describes it, with the graphic elegance which distinguishes his admirable writings. “I have repeatedly seen them dive below the surface, and remain submerged for a considerable time, occupied in pursuing the fry (or young fish), or in search of the larvæ of aquatic insects. At other times they walk slowly into the water from the shallow part of a pool, till it becomes of sufficient depth for diving; but I have not been able, even from close observation, to certify the fact repeated by some naturalists, of their walking with apparent ease at the bottom; and which error of opinion might arise from the manner of their occasionally entering the water as above stated. On the contrary the same exertion seems to be used by them as by other diving birds, an idea entertained also by Montagu. I have had an opportunity of bestowing attention on the manners of these birds, a pair having, for some years, built in a mass of rock rising from a rivulet at a very short distance from my residence. They are very early breeders, and their first family is, in general, fully fledged in the beginning of May. The young quit the nest before they are able to fly to

any considerable distance : indeed, upon being disturbed, although but half fledged, they immediately leave it, diving with great ease the moment they reach the water, which the parent birds contrive shall be effected with expedition, as they most commonly build their large mossy nest in such part of the rock as directly overhangs the stream."* The ring-ouzel is a bird of song, and begins early in spring. General colour on the upper part, black ; throat and upper part of the breast, white.

The dipper is a bird of considerable musical powers. It begins to pour forth its strong, distinct, and varied notes in the beginning of spring, and is the earliest warbler of the remote situations where it usually localizes. Montagu says, "this bird is amongst the few, that sing so early in the spring as the months of January and February. In hard frost, on the 11th of the latter month, when the thermometer in the morning had been at twenty-six degrees, we heard this bird sing incessantly in a strong and elegant manner, and with much variation in notes, many of which were peculiar to itself, intermixed with a little of the piping of the wood-lark. At the time it was singing, the day was bright, but freezing in the shade ; the sun had considerably passed the meridian, and was obscured from the bird by the lofty surrounding hills. The dipper devours a considerable quantity of fish's spawn, especially the large ova of the salmon."

"We found a nest of this bird," says Colonel Montagu, "in a steep bank, projecting over a rivulet, clothed with moss. The nest was so well adapted to the surrounding materials, that nothing but the old bird flying in with a fish in its bill, would have led to a discovery. The young were nearly full-feathered, but incapable of flight ; and the moment the nest was disturbed, they fluttered out, and dropped into the water, and to our astonishment, instantly vanished ; but in a little time, made their appearance at some distance down the stream ; and it was with difficulty that two of the five were taken, as they dived on being approached."

* Selby's British Ornithology. Part first, p. 162.

THE STARLING.

Recent writers on ornithology place the starling in the class of omnivorous birds,—but as our arrangement is already prescribed by Goldsmith, we must introduce it here. One of its favourite haunts is the ruined castle, which it inhabits in common with the swallow and daw. It also, like the thrush and black-bird, makes its abode occasionally in our groves and gardens. It has no song of its own ; but may be taught, when in confinement, to whistle tunes with great accuracy. Mr Knapp has furnished us with a very complete account of this bird, which we shall do ourselves the pleasure of extracting. “The starling breeds with us, as in most villages in England. Towards autumn the broods unite, and form large flocks ; but, those prodigious flights with which, in some particular years, we are visited, especially in parts of those districts formerly called the ‘fen counties,’ are probably an accumulation from foreign countries. We have seldom more than a pair or two, which nestle under the tiling of an old house, in the tower of the church, the deserted hole of the woodpecker, or some such inaccessible place. The flights probably migrate to this country alone, as few birds could travel long, and continue such a rapid motion as the starling. The Royston crow, the only migrating bird with which it forms an intimate association, is infinitely too heavy of wing to have journeyed with the stare. The delight of these birds in society is a predominant character ; and to feed, they will associate with the rook, the pigeon, or the daw ; and sometimes, but not cordially, with the fieldfare : but they chiefly roost with their own families, preferring some reedy, marshy situation. These social birds are rarely seen alone ; and should any accident separate an individual from the companions of its flight, it will sit disconsolate on an eminence, piping and plaining, till some one of its congeners join it. Even in small parties they keep continually calling and inviting associates to them, with a fine clear note, that, in particular states of the air, may be heard at a considerable distance. This love of society seems to be innate ; for I remember one poor bird, that had escaped from domestication, in which it had entirely lost, or probably never knew, the language or manners of its race, and acquired

only the name of its mistress ; disliked and avoided by its congeners, it would sit by the hour together, sunning on some tall elm, calling in a most plaintive strain, Nanny, Nanny : but no Nanny came ; and our poor solitary either pined itself to death, or was killed, as its note ceased. They vastly delight, in a bright autumnal morning, to sit basking and preening themselves on the summit of a tree, chattering altogether in a low song-like note. There is something singularly curious and mysterious in the conduct of these birds previously to their nightly retirement, by the variety and intricacy of the evolutions they execute at that time. They will form themselves, perhaps, into a triangle, then shoot into a long, pear-shaped figure, expand like a sheet, wheel into a ball, as Pliny observes, each individual striving to get into the centre, &c., with a promptitude more like parade movements than the actions of birds. As the breeding season advances, these prodigious flights divide, and finally separate into pairs, and form their summer settlements ; but probably the vast body of them leaves the kingdom. Travellers tell us, that starlings abound in Persia and the regions of Caucasus.

“ No birds, except sparrows, congregate more densely than starlings. They seem continually to be running into clusters, if ever so little scattered ; and the stopping of one, to peck at a worm, immediately sets all its companions hastening to partake. This habit in the winter season brings on them death, and protracted sufferings, as every village popper notices these flocks, and fires at the poor starlings. Their flesh is bitter and rank, and thus useless when obtained ; but the thickness of the flights, the possibility of killing numbers, and manifesting his skill, encourages the trial. The flight of these birds, whether from feeding to roost, or on their return to feed, is so rapid, that none with any impediment can keep company ; and in consequence we see many, which have received slight wing or body wounds, lingering about the pastures long into spring, and pining after companions they cannot associate with.

In the autumn of 1814, we saw a flight of starlings in the King's County, Ireland, which literally darkened the air, and must have consisted of at least a hundred thousand ; they were flying over the immense marshy plain near Banacher. Mr Johnston of Wetherby, attributes the appearances called fairy rings to the droppings of starlings on the turf, which, when in

large flights, frequently alight on the ground in circles, and sometimes are known to sit a considerable time in these annular congregations.

These birds are very assiduous in their attentions to their young, and in continual progress to collect worms and insects for them.*

This concludes our list of the larger kinds of British birds, of the thrush species. A full description of the foreign species will be found in the notes to Goldsmith.

We shall here introduce some birds belonging to the second or conical billed division ; viz. the common sparrow, the greenfinch, the gross-beak, &c. leaving the more eminent song birds of this class till we come to speak of the canary, which follows the nightingale and others of the first division, according to the arrangement of Goldsmith.

THE SPARROW.

The finch, or sparrow tribe have been but imperfectly described by naturalists ; their want of song and sober attire, seem to have been the cause of their having been treated with that neglect which has ever attended them. They are very inoffensive in their habits, and feed principally upon grain, and also on caterpillars. It has been calculated that during the time of their incubation, they destroy an average of three thousand and sixty caterpillars in a week. So that the total damage they commit on cornfields, is more than compensated, by the destruction of those voracious caterpillars which lay waste our fruit, and grubs which undermine and feed on the roots of grain and vegetables. It is on account of this quantity of food being required by their young, which no doubt impels them instinctively, to make their nests so thick and feathery, so as to keep the brood warm in their absence.

On Thursday, the 20th December, 1827, four sparrow's eggs were taken from a nest in a thatched house, Canal Street, Paisley. The stormy weather which prevailed at that season of the

* Journal of a Naturalist. p. 194.

year, rendered it necessary to repair the roof of this house, and the thatcher, when ascending his ladder, observed a sparrow fly from a hole in the eave, which led him to examine the aperture, and he found in it a warm nest, containing the eggs.

Not the least remarkable feature in the history of the sparrow, is its almost universal diffusion, for, wherever man has fixed his abode the house-sparrow is certain to be found, and apparently of the very same species, and differing but little in size from those inhabiting Europe. Most birds are peculiar to different latitudes, but this genus has an unlimited geographical range.

One of the most interesting of the genus is the song sparrow of America; so well described by our countryman Wilson. "So nearly do many species of our sparrows approximate," says he, "to each other in plumage, and so imperfectly have they been taken notice of, that it is absolutely impossible to say, with certainty, whether the present species has been described or not. And yet, of all our sparrows, this is the most numerous, the most generally diffused over the United States, and by far the earliest, sweetest, and most lasting songster. It may be said to be partially migratory, many passing to the south in the month of November; and many of them still remaining with us, in low, close sheltered meadows and swamps, during the whole of winter. It is the first singing bird in Spring, taking precedence even of the pewee and bluebird. Its song continues occasionally during the whole summer and fall, and is sometimes heard even in the depth of winter. The notes, or chant, are short, but sweet, resembling the beginning of a canary's song, and frequently repeated, generally from the branches of a bush or small tree, where it sits chanting for an hour together."

The song sparrow builds in the ground, under a tuft of grass, and what is singular, the same bird often fixes his nest in a cedar tree five or six feet from the ground.

Wilson says that the Chipping sparrow builds "in the branches of the trees with which our streets and gardens are ornamented, and gleans up crumbs from our yards, and even our doors, to feed his more advanced young with. I have known one of these birds attend regularly every day, during a whole summer, while the family were at dinner, under a piazza, fronting the garden, and pick up the crumbs that were thrown to him. This

sociable habit, which continues chiefly during the summer, is a singular characteristic. Towards the end of the summer, he takes to the fields and hedges until the weather becomes severe with snow, when he departs for the south."

The sparrow often takes possession of holes, which have been dug out with no small trouble by the bank swallow. White says, "this most usually happens when the swallows breed near hedges and enclosures." Colonel Montague says, "that though sparrows delight to frequent such places, they rarely nestle in their vicinity, unless houses be near, and not even then in any number. In a colony of bank swallows, for instance, near Charlton, in Kent, consisting of more than a hundred pairs, not more than two or three pairs of sparrows have settled; I say 'settled,' because they appear to live on terms of good neighbourhood with the original colonists, as I have watched them for hours, passing and repassing without the least indication of hostility, which amongst birds soon shows itself in tones of insult and defiance, and by incessant skirmishing and bickerings. How differently these same bank swallows treated a poor cuckoo, I had an opportunity of witnessing, while observing their good fellowship with the sparrows. The cuckoo was flying quietly along, certainly meditating no harm against the swallows, and not even poaching on their domain by hawking for flies, in as much as he prefers a breakfast of caterpillars, which the swallows never touch; nevertheless, the instant he appeared, the tocsin was sounded, and every swallow in the colony darted out of their holes to pounce upon the intruder, whom they beat most unmercifully with bill and wing, till they drove him from their boundaries. The sparrows, meanwhile, sat on the mouths of their holes with the utmost nonchalance as spectators, altogether unconcerned in the affray."

The following fact goes far towards proving that instinct differs chiefly in degree from reason.—A few years since, a pair of sparrows, which had built in the thatch roof of a house at Poole, were observed to continue their visits to the nest long after the time when the young birds take flight. This unusual circumstance continued throughout the year, and in the winter, a gentleman who had all along observed them, determined on investigating the cause. He therefore mounted a ladder, and found one of the young ones detained a prisoner, by means of

a piece of string, or worsted which formed part of the nest, having become accidentally twisted round its leg. Being thus incapacitated from procuring its own sustenance, it had been fed by the continued exertions of its parents.

Some years ago, a brood of young white sparrows, four in number, were observed scarcely fledged in Bothwell parish, Lanarkshire. Some boys on making the discovery, immediately gave chase to the callow brood. In the eagerness of pursuit, three of this unfortunate family were killed, the remaining one was caught and sent to a gentleman in the Trongate of Glasgow, where it died shortly afterwards. It was not fit for preservation, its plumage being but little advanced. Thus did the beauty of this family cause its ruin.

A turn-up between a cock-sparrow and a mouse, took place some time ago, at Tattersall's, in London, that highly-famed sporting establishment. A sparrow, who was in the daily habit of picking up the crumbs of bread which were thrown out from one of the rooms (and which, it appeared, he viewed as his exclusive right,) was suddenly interrupted in his pursuit by a little hungry mouse, who had been some time without food, attacked the sparrow, seized upon the crumbs of bread, and endeavoured to run off with his prize. The sparrow immediately showed *fight*, and *nobbed* the mouse so successfully with his beak, that he bolted, and made for a hole in the wall, to escape from the fury of his antagonist; but the hole being too small, the poor mouse stuck fast for a little time, when the sparrow *punished* him severely. Five and six, to four on the *feathers*, was offered by those who witnessed this singular *milling match*. The mouse in his own defence was compelled to return to the charge; and was again so *milled*, that he ran a little way up the wall, but falling down from weakness, the sparrow once more had the *best of him*. Two to one was offered by the surrounding spectators, (who were now so much interested upon the event, that Randall and Martin could not, for the instant, have proved more attractive to their feeling,) that the *gay* bird won it. Mousey, who was not destitute of *pluck*, determining to have another *shy* for the *crumb*, made a desperate effort to carry it off; but the little cock bird *served* him out so *hard*, and *fast*, that mousey left the ground with the speed of a *Gustavus*, and got out of the clutches of his opponent, by falling down an area. The sparrow

followed the mouse till he lost sight of him, cocking his little *ogles* down the area after his adversary, and strutting with all the pride of a first-rate *miller*, as if *chaffing* to himself, "I've given it you, my mousey, for your temerity;" then returning to the spot, he finished the crumbs at his ease and leisure, amidst the laughter of the surrounding spectators.

The cock sparrow is well known to be a very *game* bird; indeed both these little creatures seemed as if they were inspired by the sporting ardour which breathes through every department of the splendid establishment where the *set-to* took place.

About ten years ago, when walking along Drummond Place, Edinburgh, two cock sparrows had quarrelled, and fought most determinedly on the roof of a house; one of them fell from the ledge, and the other taking advantage of this, flew on the top of him and bore him down to the flags, where they screamed and fought like two game cocks. So intent were they on their battle, that I approached, and seized them both before they were aware of it,—and after carrying them for a little way, I set them both at liberty at the same instant, when they again commenced hostilities, and fought their battle out in the enclosure amongst the trees; one of them fled, and was hotly pursued by the other.

The late Mrs O'Brian, of Manor Place, Chelsea, was extremely fond of birds, of which she kept a considerable number in cages, for her amusement. Among others, she had a canary, who was a particular favourite; but the loudness of his note often obliged her to put him outside of the window, among some trees which were trimmed up in front of the house. One morning during breakfast, when the cage was thus placed, a sparrow was observed to fly round and round it, to stand upon the top, and to twitter to the bird within, between whom and itself a species of reciprocal conversation at length began to ensue. After a few moments he flew away, but returned in a short time, bearing a worm in his bill, which he dropped into the cage, and again flew away. Similar presents were received day after day, at the same time, by the canary from his generous friend the sparrow, with whom he at length became so intimate, that he very often received the food thus brought, into his own bill, from that of the sparrow. An affair so curious and interesting, had often many spectators; and some of the neighbours to

try the extent of the sparrow's benevolence, also hung their birds out at the window, when curious to relate, they found them also fed; but the first and longest visit was always paid by the sparrow to his earliest acquaintance.

Notwithstanding the sociable disposition manifested by this sparrow towards his feathered companions, he was excessively shy with regard to man, for they were obliged to observe his motions at a distance, as the instant he noticed them, he flew away. These visits were continued till the commencement of winter, and he then withdrew, never to appear again.

We are told by a contributor to the Magazine of Natural History, that in November, 1829, a gentleman noticed a fight between a rat and a hedge-sparrow. The sparrow acted on the offensive as well as the defensive, by striking at the rat on the head, with its beak. On hearing the gentleman approach, the sparrow flew away, and the rat disappeared among the bushes. What could have been the cause of this fight? It was too late in the season for the sparrow to have young or eggs to defend. It evidently could not be in self-defence, for she could have flown away as well at first as at last.

The author of the novel of "Newton Forster" says, that he always considered a London cock-sparrow the most impudent of animals, till he became acquainted with midshipmen, who he thinks take the *pae* in this respect. Sparrows which have not had the benefit of a London education, are very well provided with modest assurance, as a visit to the next poultry-yard may convince us. There the sparrow disputes possession of whatever food is laid down for the domestic fowls. Neither the bold eye of chanticleer, nor the garrulous strut of the turkey, prevent him from taking what he can get. If either of these potentates makes a peck at him, he merely skips out of the reach a little, and as little as possible, and then resumes the feast. This proves him to have no respect for the presence of his superiors. They may frown as they please for aught he cares, if he can but keep out of their reach, which he manages easily to do.

We have already alluded to the wide diffusion of the sparrow-tribe, and subjoin the following somewhat affecting illustration. An old man belonging to the neighbourhood of Glasgow, who was a soldier in his youth, mentions, that he became first reconciled to a foreign country, by observing a sparrow hopping about

just as he had seen them do at home. "Are you here too, freen?" said he to the sparrow. He does not add that it returned a verbal answer to his exclamatory question,—but he could not help fancying that it looked assent, as if it understood he was an exile, and wished him to take a lesson of resignation to circumstances.

THE GREENFINCH.

This is an indigenous species, and abounds throughout Britain. Though its natural notes are few, and such as do not entitle it to be classed among song-birds, it may be taught to imitate their notes, and becomes very soon reconciled to confinement. "In Spring," says Montbeillard, "it makes its nest in trees or bushes. It is larger, and almost as neatly formed as that of the chaffinch, consisting of dry herbs and moss, lined with hair, wool, and feathers; sometimes it places it in the chinks of the branches, which it even widens with its bill: it also constructs near the spot a little magazine for provisions." * The greenfinch is much attached to its young, as is strikingly illustrated by the following anecdote. A gentleman residing in a village near Edinburgh, procured a nest of young greenfinches for a friend who was stocking an aviary. He placed them in a cage at a window looking into a crowded street. They had not remained there many minutes, when the parent birds found them out, and the window being raised, came in and fed them. This they continued to do, till the young ones could feed themselves. The nest was brought from a wood, about a quarter of a mile distant from the village. The name of this bird indicates its general colour.

THE CROSSBILL.

The crossbill is only an occasional visitant of Britain. Great

* Oiseaux. Art. Le Verdier.

numbers sometimes arrive, and disperse themselves over woods and plantations where the fir-tree abounds. "Crossbills," says a writer in the Magazine of Natural History, "on their arrival in this country, seem to apprehend little danger from man, and will suffer themselves to be approached very near, without manifesting the least alarm. In the month of August, 1810, a small flock of these birds frequented the plantations in Crumpsall, and on one occasion, I fired three shots in quick succession, and killed an individual each time, in a small spruce fir, without appearing to disturb their companions which were feeding on the same tree, nor did they ultimately take flight, till I shook the fir violently for the purpose of dislodging the birds I had shot, from the branches on which they had fallen. The high condition of these birds, proved that their disregard of man and firearms, was not occasioned by hunger."

"The manners of these birds," says Mr Selby, "are interesting when in a state of confinement (to which they become speedily accustomed), as they strongly resemble the parrot tribe in climbing along the wires of the cage in any direction, by means of their bill and claws. The call-notes of the crossbill are a kind of twitter, which it constantly repeats when feeding; and a louder one uttered when on wing, not unlike that of the greenfinch, but rather shriller. According to Willoughby, and the older authors, it also possesses a pleasant song, only heard during the winter months, or season of incubation."

This bird derives its name from the peculiar formation of the bill, the upper and lower mandibles of which are hooked at the end, and cross each other, one pointing down, the other up. General colour, a tile-red, intermixed with yellowish grey.

THE GROSSBEAK.

Of this bird there are several varieties. The pine grossbeak rarely visits our island, and is only to be met with in the pine woods and plantations of the north of Scotland. They inhabit similar localities in Europe, Asia, and North America. One species, which, from its mode of building, has obtained the name of the Sociable Grossbeak, is thus mentioned in Vaillant's

travels. I observed on the way a tree with an enormous nest of those birds to which I have given the appellation of republicans ; and, as soon as I arrived at my camp, I despatched a few men, with a waggon, to bring it to me, that I might open the hive, and examine its structure in its minutest parts. When it arrived, I cut it to pieces with a hatchet, and saw that the chief portion of the structure consisted of a mass of Boshman's grass, without any mixture, but so compact and firmly basketted together as to be impenetrable to the rain. This is the commencement of the structure ; and each bird builds its particular nest under this canopy. But the nests are formed only beneath the eaves of the canopy, the upper surface remaining void, without, however, being useless ; for, as it has a projecting rim, and is a little inclined, it serves to let the rain-water run off, and preserves each little dwelling from the rain. Figure to yourself a huge irregular sloping roof, and all the eaves of which are completely covered with nests, crowded one against another, and you will have a tolerably accurate idea of these singular edifices.

Each individual nest is three or four inches in diameter, which is sufficient for the bird. But as they are all in contact with one another, around the eaves, they appear to the eye to form but one building, and are distinguishable from each other only by a little external aperture, which serves as an entrance to the nest ; and even this is sometimes common to three different nests, one of which is situated at the bottom, and the other two at the sides. According to Paterson, the number of cells increasing in proportion to the increase of inhabitants, the old ones become 'streets of communication, formed by line and level.' No doubt, as the republic increases, the cells must be multiplied also. But it is easy to imagine that, as the augmentation can take place only at the surface, the new buildings will necessarily cover the old ones, which must therefore be abandoned.

Should these even, contrary to all probability, be able to subsist, it may be presumed that the depth of their situation, by preventing any circulation and renewal of the air, would render them so extremely hot as to be uninhabitable. But while they thus become useless, they would remain what they were before, real nests, and change neither into streets nor sleeping-rooms.

The large nest that I examined was one of the most considerable I had anywhere seen in the course of my journey, and contained three hundred and twenty inhabited cells, which, supposing a male and female to each, would form a society of six hundred and forty individuals. Such a calculation, however, would not be exact. I have spoken above of birds among which one male is in common to several females, because the females are much more numerous than the males. The same is the case with many other species, both in the environs of the Cape and in the colony; but it is particularly so among the republicans. Whenever I have fired at a flock of these birds, I have always shot four times as many females as males.

THE CHAFFINCH.

This species is common throughout the country, and is now ascertained to be migratory, though it was formerly described by naturalists as a permanent resident with us. The following anecdote of the chaffinch, from the Buckinghamshire Herald, forms the subject of one of Cowper's poems.

Glasgow, May 23d, 1793. In a block, or pulley, near the head of the mast of a gabert now lying at the Broomielaw, there is a chaffinch's nest and four eggs. The nest was built while the vessel lay at Greenock, and was followed hither by both birds. Though the block is occasionally lowered for the inspection of the curious, the birds have not forsaken the nest. The cock, however, visits the nest but seldom, while the hen never leaves it but when she descends to the hulk for food.

Colour on the head and neck, deep greyish blue. Back chestnut-brown, rump deep yellow.—The chaffinch is met with in most parts of Europe.

THE YELLOW HAMMER.

Mr Selby attributes the small estimation in which this bird is held, to the prevalence of the species. He does not seem to be aware of the vulgar notion, that the yellow hammer has three drops of the devil's blood in its head, and that the Scottish pea-

santry suppose its song to be, *Deil, deil, deil take thee !* Though every school-boy hates this bird as much as he loves the red-breast, yet he is afraid to harm it, lest its formidable relative should interfere in its behalf, or be afterwards revenged. The yellow-hammer is, however, as harmless as it is beautiful, and we have few native birds that can compare with it in plumage. We have not a single anecdote of it to tell, and shall therefore conclude by extracting the following pretty account of its nest, from Grahame's *Birds of Scotland*.

“ Up from the ford, a little bank there was
With alder-copse and willow overgrown,
Now worn away by mining winter floods ;
There, at a bramble root, sunk in the grass,
The hidden prize of withered field straws formed,
Well lined with many a coil of hair and moss,
And in it laid five red-veined eggs, I found.”

The Bunting. The common bunting bears a strong resemblance to the lark. Its notes are, however, very harsh and loud, the bird generally perched on the top of a hedge while it utters them. The varieties of the bunting are described in the notes to Goldsmith.

The Siskin. This bird visits us only in winter. It may be easily tamed, and taught a variety of tricks. Yellow and green are the prevailing tints of the siskin.

The Wheat-Ear. This species is migratory, coming earlier and retiring later than most others. “ Upon its first arrival, and previous to its equatorial migration, it is extremely fat, and of high flavour ; is then esteemed as a great delicacy, and considered little inferior to the ortolan. It is of course in great demand, and vast numbers are annually caught upon the downs. The mode of entrapping them is simple, but singular ; and is effected by placing two turfs on edge, with a small horse-hair noose fixed to a stick at each opening. The bird, attempting to enter in search of food, or to escape from apprehended danger, is almost certain of being caught by one of the nooses. Pennant says, that as many as 1840 dozen of these birds have been taken in one year, about Eastbourne in Sussex.”* Colour of the upper parts bluish-grey, wings brownish-black, belly and vent white,

* Selby's Ornithology. Part first, p. 200.

THE NIGHTINGALE

AND OTHER SOFT-BILLED BIRDS.

IN delicacy and richness of note, this class of small birds excels the hard-billed species. An ambitious vehemence of utterance characterises some of the latter, and they seem to challenge our approbation ;—the former move us by a power of which they themselves appear to be unconscious.

THE NIGHTINGALE.

This bird has been so often described, that little new remains for us to tell about it. Its outward appearance is as plain as its song is splendid in compass and variety. The nightingale is only known in Europe, and it haunts the closest woods, where it is often heard and seldom seen. Owing to the shortness of its wings, we cannot help doubting the correctness of those writers who assign it a wider range than we have done. The following very original *Ode to a Nightingale*, by John Keats, will please most readers.

My heart aches, and a drowsy numbness pains
My sense, as though of hemlock I had drunk,
Or emptied some dull opiate to the drains
One minute past, and Lethe-wards had sunk :
'Tis not through envy of thy happy lot,
But being too happy in thine happiness,—
That thou, light-winged Dryad of the trees,
In some melodious plot
Of beechen green, and shadows numberless,
Singest of summer in full-throated ease.

O, for a draught of vintage! that hath been
Cool'd a long age in the deep-delved earth,
Tasting of Flora and the country green,

Dauce, and Provencal song, and sunburnt mirth !
 O for a beaker full of the warm South,
 Full of the true, the blushful Hippocrene,
 With headed bubbles winking at the brim,
 And purple-stained mouth,
 That I might drink, and leave the world unseen
 And with thee fade away into the forest dim :

Fade far away, dissolve, and quite forget
 What thou among the leaves hast never known,
 The weariness, the fever, and the fret,
 Here, where men sit and hear each other groan ;
 Where palsy shakes a few, sad, last gray hairs,
 Where youth grows pale, and spectre-thin, and dies,
 Where but to think is to be full of sorrow
 And leaden-eyed despairs,
 Where Beauty cannot keep her lustrous eyes,
 Or new Love pine at them beyond to-morrow.

Away ! away ! for I will fly to thee,
 Not charioted by Bacchus and his pards,
 But on the viewless wings of Poesy,
 Though the dull brain perplexes and retards.
 Already with thee ! tender is the night,
 And haply the Queen-Moon is on her throne,
 Cluster'd around by all her starry Fays ;
 But here there is no light,
 Save what from heaven is with breezes blown
 Through verdurous glooms and winding mossy ways.

I cannot see what flowers are at my feet,
 Nor what soft incense hangs upon the boughs ;
 But, in embalmed darkness, guess each sweet
 Wherewith the seasonable month endows
 The grass, the thicket and the fruit-tree wild ;
 White hawthorn, and the pastoral eglantine ;
 Fast-fading violets covered up in leaves ;
 And mid-May's eldest child,
 The coming musk-rose, full of dewy wine,
 The murmurous haunt of flies on summer eves.

Darkling I listen ; and, for many a time
 I have been half in love with easeful Death,
 Call'd him soft names in many a mused rhyme,
 To take into the air my quiet breath ;
 Now more than ever seems it rich to die,
 To cease upon the midnight with no pain,
 While thou art pouring forth thy soul abroad
 In such an ecstasy !
 Still would'st thou sing, and I have ears in vain
 To thy high requiem become a sod.

Thou wast not born for death, immortal bird !
 No hungry generations tread thee down ;
 The voice I hear this passing night, was heard
 In ancient days by emperor and clown :
 Perhaps the self-same song that found a path
 Through the sad heart of Ruth, when, sick for home,
 She stood in tears amid the alien corn ;
 The same that oft-times hath
 Charm'd magic casements, opening on the foam
 Of perilous seas, in faery lands forlorn.

Forlorn ! the very word is like a bell
 To toll me back from thee to my sole self !
 Adieu ! the fancy cannot cheat so well
 As she is fated to do, deceiving elf.
 Adieu ! adieu ! thy plaintive anthem fades
 Past the near meadows, over the still stream,
 Up the hill-side ; and now, 'tis buried deep
 In the next valley-glades :
 Was it a vision, or a waking dream ?
 Fled is that music :—Do I wake or sleep ?

The nightingale is on the head and back, of a tawny colour ;
 whitish on the breast and belly, and has a bright full eye.

THE REDBREAST.

This favourite of man has a sweet melancholy song ; which, however, if naturalists say true, is prompted by a pugnacious spirit, like the crowing of the domestic cock. Both sexes sing. The following interesting particulars respecting the redbreast, are contained in a letter of Von Osdatt to the Editor of the Magazine of Natural History.

This bird is plentiful all over Europe, and was considered as a bird of passage, but, as finely expressed by Buffon, the departure in the autumn, "not being proclaimed among the redbreasts, as among other birds at that season, collected into flocks, many stay behind ; and these are either the young and inexperienced, or some which can derive support from the slender resources of the winter." Whatever may be the case in France, the red-breast is well known, not to be migratory in this country : for here we find them in all situations very abundant, and even plentiful in large towns. "The redbreast," says Dr Flem-

ing, in a letter to Colonel Montagu, "is only occasionally observed in Zetland after gales of wind."

The redbreast sings throughout the winter, except during severe storms.

Many naturalists state that the redbreast invariably retires to the deep recesses of woods and other solitary places to incubate ; but recent observation proves this not to be strictly correct. We have often, in our boyhood, found their nests in many of the hedges around, and even within the gardens of Edinburgh ; and at the present time, robins will build common enough, in the meadows where there are people continually passing. At our residence in Fife, there was a robin's nest in a honey suckle bush which grew over our milk-house and larder, close behind the house, and which was passed at all times of the day ; and so imperfectly was it covered, that we could see the female's head while sitting on her nest. The observant Grahame, whose pictures are ever true to nature, thus writes on this subject,

High is his perch, but humble is his home,
And well concealed, sometimes within the sound
Of heartsome mill-lack, where the spacious door
White dusted, tells him plenty reigns around ;
Close at the root of briar-bush that o'erhangs
The narrow stream, with sheelings bedded white,
He fixes his abode and lives at will.
Oft near some single cottage he prefers
To rear his little home ; there, pert and spruce,
He shares the refuse of the good wife's churn,
Nor seldom does he neighbour the low roof
Where tiny elves are taught." *

His spring and summer habits, when he leaves the household gods for the haunts of the hamadryads, are quite as interesting to the naturalist who strolls the fields as his winter ones, when we watch him skipping about the door, or fluttering on the ledges of our frosted windows ; indeed, I would say more so ; for, when sunshine and love call him to the grove, we see him all animation and song, his scarlet stomacher more bright, and his form more graceful ; busily preparing for the great work of increasing his kind. In the winter, I conceive his habits to be unnatural, if I may be allowed the expression : we then see him

* Birds of Scotland, page 29.

a bird of sorrow, obliged, from scarcity of food, to leave his sylvan recesses and frequent the haunts of man. Brooding on a solitary post in the snow, he looks unhappy, and his slender pipe and chirp seem the wailing of his starved, forlorn, and half-domesticated state.

In the spring-time he is a constant companion of the gardener, and seldom have I witnessed him with more delight than when engaged in this healthy and rational recreation. Perched on the bough of a neighbouring apple tree, his prominent black eye keenly bent on the earth as it is turned up with the spade, and his head twisted aside, he watches the writhings of some poor worm or insect larva disturbed from its place of repose; briskly pouncing on it, he regains another situation, to wait and anticipate a fresh supply.

When the brood of the robin first leaves the nest, the young ornithologist will be very apt, from their mottled breasts and great difference of plumage from the old ones, to imagine them another species of bird; particularly the young of the redstart (*Motacilla Phœnicurus*,) but from which they may be readily distinguished by the peculiar horizontal movement in the tail of the latter. This difference of plumage, by the by, in old and young birds of the same species, has often misled even the experienced naturalist, and has rendered rather incorrect some of the genera of our British birds. The young of the robin, too, are perhaps the silliest and most stupid of all young birds; easily falling a prey to the cat, weasel, &c.; and though numbers are produced at every incubation, of which there are sometimes two, or even more, during the breeding season, they are comparatively scarce, from the above cause.

Few observers of nature, I suppose, can have passed unheeded the sweetness and peculiarity of the song of the robin, and its various indications with regard to atmospheric changes: the mellow liquid notes of spring and summer, the melancholy sweet pipings of autumn, and the jerking chirps of winter. In spring, when about to change his winter song for the vernal, he for a short time warbles in so unusual a strain as at first to startle and puzzle even those ears most experienced in the notes of birds. He may be considered as part of the naturalist's barometer. On a summer evening, though the weather be in an unsettled and rainy state, he sometimes takes his stand

“ On the topmost twig that looks up to the sky,”

or on the “house top,” singing cheerfully and sweetly. When this is observed, it is an unerring promise of succeeding fine days. Sometimes, though the atmosphere be dry and warm, he may be seen melancholy, chirping and brooding in a bush, or low in a hedge : this promises the reverse of his merry lay and exalted station.

During the last winter I availed myself of the ingenious contrivance suggested by Mr Dovaston, in a note to the preface of the first volume of *Bewick's Birds*. By placing what he there facetiously calls an ornithotrophè, well supplied with bones and other food, before my sitting-room window, I have been enabled to scrape acquaintance with some of the more scarce birds, as well as with my old familiar, the robin. In the early part of the winter, my ornithotrophe was frequented by two or three robins, who seemed to agree tolerably well, yet not without occasional bickerings ; but as the frost became more intense, and the ground covered with snow, my visitors increased greatly in number. Now ensued a perpetual scene of warfare ; not, as would be imagined, for the food, as there was plenty, and room enough, but, oh ! it must be confessed, sheer jealousy.

I must not, however, take leave of my amusing friend by relating a fault, without some attempt to justify him. By my last observation on his habits, I am confirmed in the opinion advanced by an ingenious friend, that each bird of this species has a regular beat of his own, to which he thinks himself justly entitled, and the pugnacity which he exerts is to expel some daring intruder's raid on his own personal property.

The redbreast is strongly attached to its offspring, and it is with difficulty it can be driven from its nest : an excellent example of this is related by Mr Jesse :—“ A gentleman in my neighbourhood,” says he, “ had directed one of his waggons to be packed with sundry hampers and boxes, intending to send it to Worthing, where he was going himself. For some time, his going was delayed, and he therefore directed that the waggon should be placed in a shed in his yard, packed as it was, till it should be convenient for him to send it off. While it was in the shed, a pair of robins built their nest among some straw in the waggon, and had hatched their young, just before it was sent away. One

of the old birds, instead of being frightened away by the motion of the waggon, only left its nest from time to time for the purpose of flying to the nearest hedge for food for its young ; and thus, alternately affording warmth and nourishment to them, it arrived at Worthing. The affection of this bird having been observed by the waggoner, he took care in unloading, not to disturb the robin's nest, and my readers, I am sure, will be glad to hear, that the robin and its young ones returned in safety to Walton Heath, being the place from whence they had set out. The distance the waggon went in going and returning, could not have been less than one hundred miles."

In the Carlisle Journal, an extraordinary instance of reason is mentioned, as having been manifested by a robin at Mary-port. A poor redbreast attempted to fly over the river Ellen, but through great weakness, fell into the water. Its help mate, another redbreast, seeing its distressed situation, came to its assistance, and seizing it by the tuft of feathers on its head, actually bore it safe to land.

One morning in the autumn of 1774, M. Goetz, of Quedlinburg, found a robin-redbreast in his dining-room. The bird immediately followed him into a warm apartment, and greedily ate the food that was placed before him. As soon as he had satisfied his hunger, he went to bathe himself in one of the cups that stood upon the breakfast table. M. Goetz gave him water, he bathed himself in it, and remained throughout the winter very cheerful. At the return of spring, M. Goetz wished to set him at liberty, and opened all the windows to let him out, but he showed no inclination to leave the house, so that at last it was necessary to drive him away.

In the beginning of the next autumn, M. Goetz was informed that a bird was flying against his windows, but he did not think the circumstance worth attending to. One of the servants going in the evening into the cellar, a bird flew to the candle, and easily suffered himself to be taken. He was brought to M. Goetz who found him to be a redbreast. When he was let loose, it seemed remarkable that after flying about the room for a while, he seated himself in the same place where the redbreast that had been an inmate of the house the preceding winter, had been used to sit. This might have been chance, but the next day, M. Goetz paid more attention to the actions of the

bird. As soon as he awoke in the morning, he went to the place where the cup of victuals had usually been set for the former bird, and the same cup was now placed there for him. After he had ate his meal, the bathing cup was placed in its usual situation, and the bird was immediately in it. In short, his whole conduct was exactly similar to that of the former bird, in so much that there remained no doubt that this was the same which had been in the house the preceding season.

A precisely similar occurrence took place in Edinburgh many years ago. During a severe storm, a robin came to the window of the room where my father usually sat, and perceiving the little warbler, he opened the window to lay down some crumbs for him. And instead of flying away as he expected it would do, on opening the window, it hopped into the room, and picked from the floor the crumbs which were thrown to it. My father being extremely attached to animals, took great pleasure in rendering this bird as tame as possible; which he effected so completely, that it would pick small pieces of raw flesh and worms from his hand; and sat on the table where he wrote, and occasionally on the fender before the fire, when the day was very cold. But when any stranger entered the room, it flew to the top of a door where it perched during the night. The window was frequently opened to give the room air, but the robin never attempted to fly away. When the spring advanced, and the weather became fine, the robin at length flew away one morning, but in the afternoon, about sunset it again made its appearance at the window, and solicited an entrance, by its usual wild and beautiful strains. It was accordingly admitted, and was always allowed to go out whenever it seemed inclined, and continued to return every afternoon; till at the season of incubation it took its departure.

Next fall of the year, the robin again returned to the window, and although the weather was by no means stormy, he entered the room as soon as the window was opened, and evinced the same familiarity which he had shown on the preceding winter, and conducted himself in every respect the same: and again departed to the woods in summer. He returned in the same manner a third winter, and when summer again came he was let out, and went off never again to return; which cost my father much concern. What is remarkable, is that he should have found his

way to a particular window in the midst of a great city.—Thomson, the poet of nature, thus delightfully describes the annual visits of the robin.

The red-breast, sacred to the household gods,
Wisely regardful of the embroiling sky,
In joyless fields, and thorny thickets, leaves
His shivering mate, and pays to trusted man
His annual visit. Half afraid he first
Against the window beats ; then brisk alights
On the warm hearth, then hopping o'er the floor,
Eyes all the smiling family askance,
And pecks, and starts, and wonders where he is ;
Till more familiar grown, the table-crumbs
Attract his slender feet.

Mrs Prowse, who lives at Mount Edgecomb-lodge, left a basket of live cockles outside of the door, and on her return, found a robin, which had flown into the basket, vainly endeavouring to escape from one of the shell fish which had caught the bird by the foot, and preserved its hold with such tenacity, as to deprive the little flutterer of two claws before he could be extricated.

His present majesty, when residing at Bushy Park, had a part of the foremast of the Victory, against which Lord Nelson was standing when he received the fatal wound, deposited in a small temple on the grounds of Bushy House, from which it was afterwards removed, and placed at the upper end of the dining room, with a bust of Lord Nelson upon it. A large shot had passed completely through this part of the mast, and while it was in the temple, a pair of robins had built their nest in the shot hole, and reared a brood of young ones. It was impossible to witness this little occurrence, without reflecting on the scene of blood, and strife of war, which had occurred to produce so snug and peaceable a retreat for a nest of harmless robins.

A female redbreast, last season, built her nest and hatched her eggs in an old lamp, at the distance of about three yards from the kitchen fire, in the house of Mr John Bumer, gate keeper to Lord Viscount Mandeville, Tandrogee ; and, notwithstanding the house was frequently crowded with people, the little songster fearlessly went on with its work, and brought out its young, which, as soon as they were fledged, flew down to the floor of

the kitchen, and hopped about as familiarly as chickens. It is proper to remark, that this robin has been in the habit of frequenting Mr Bumer's house, previous to the time of building; and had become familiar and considerably domesticated. Colour on the upper parts brown; neck and breast deep reddish orange.

THE SKY-LARK.

This bird is common throughout Britain, preferring grassy and open lands. Its song is sweet and varied, and sustained without intermission while it remains on the wing. Its ascent is generally spiral, and it is often invisibly high. Sometimes it descends obliquely, and sometimes lets itself fall, as it were, perpendicularly down.

" Up springs the lark,
Shrill voic'd and loud, the messenger of morn ;
Ere yet the shadows fly, he, mounted sings
Amid the dawning clouds, and from their haunts
Calls up the tuneful nations."*

In connection with these lines, we introduce another fine passage by the author of the *Isle of Palms*. " Higher, and higher than ever rose the tower of Belus, soars and sings the lark, the lyrical poet of the sky.—Listen, listen ! and the more remote the bird, the louder is his hymn in heaven. He seems, in his loftiness, to have left the earth for ever, and to have forgotten his lowly nest. The primroses and the daisies, and all the sweet hill-flowers, must be unremembered in the lofty region of light. But just as the lark is lost—he and his song together—both are again seen and heard wavering down the sky, and in a little while he is walking contented along the furrows of the braided corn, or on the clover lea, that has not felt the plough-share for half a century."

The following interesting particulars are communicated by Mr J. Main in the *Magazine of Natural History*. His joyous matins and heavenward flight have been aptly compared to

hymns and acts of adoration and praise. No bird sings with more method : there is an overture performed *vivace crescendo*, while the singer ascends ; when at the full height, the song becomes *moderato*, and distinctly divided into short passages, each repeated three or four times over, like a *fantasia*, in the same key and time. If there be any wind, he rises perpendicularly by bounds, and afterwards poises himself with breast opposed to it. If calm, he ascends in spiral circles ; in horizontal circles during the principal part of his song, and zigzagly downwards during the performance of the *finale*. Sometimes, after descending about half way, he ceases to sing, and drops with the velocity of an arrow to the ground. Those acquainted with the song of the sky-lark can tell without looking at them whether the birds be ascending or stationary in the air, or on their descent ; so different is the style of the song in each case. In the first, there is an expression of ardent impatience ; in the second, an *andante* composure, in which rests of a bar at a time frequently occur ; and in the last, a graduated sinking of the strains, often touching the subdominant before the final close. The time and number of the notes often correspond with the vibrations of the wings ; and though they sometimes sing while on the ground, as they are seen to do in cages, their whole frame seems to be agitated by their musical efforts.

This is one of the earliest spring birds of song, and continues its warblings for the whole summer months, but becomes quite mute in winter ; and is one of the few birds which chant on the wing ; it sings with greatest energy in the morning—and has been the theme of poets in all ages, and is, perhaps, more listened to during its ærial flights than almost any other bird. Milton says of it :—

To hear the lark begin his flight,
And singing startle the dull night,
From his watch-tow'r in the skies,
Till the dapple dawn doth rise ;
Then to come in spite of sorrow,
And at thy window bid good-morrow.*

Instead of retiring to the impenetrable recesses of the woods

* Milton's L'Allegro.

during the time of incubation, like many other birds of song, the lark appears in the broad face of day, in the open fields.

The lark makes its nest on the ground, between two clods of earth, or scrapes a hollow cavity in the soil, and there deposits four dirty-white eggs, which are blotched and spotted with brown. It commences the business of incubation early in May, and if its first nests are destroyed, will lay so late as September. Mr Jesse asserts that when the lark is disturbed while incubating, it will remove its eggs from its nest to a place of greater security; "and this transposition," says he, "I have observed to be effected in a very short space of time. When one of my mowers first told me that he had observed the fact, I was somewhat disinclined to credit it; but I have since ascertained it beyond a doubt, and now mention it as another strong proof of that order in the economy of Nature, by means of which this affectionate bird is enabled to secure its forthcoming offspring. I call it affectionate, because few birds show a stronger attachment to their young." He adds, "since this was written, I have had a further opportunity of observing the fact respecting the larks removing their eggs; and a friend informed me that, when he was recently in Scotland, a shepherd mentioned having witnessed the same circumstance." Grahame thus beautifully expresses himself on the building of the lark:—

"The daisied lea he loves, where tufts of grass
Luxuriant crown the ridge; there with his mate,
He forms his lowly house of withered herbs,
And coarsest speargrass; next the inner work,
With finer and still finer lays,
Rounding it curious with his speckled breast."*

This bird sits only fifteen days, and usually produces two broods in the year. As soon as the young have escaped from the shell, the attachment of the parent bird seems to increase, she flutters over their heads, directs all their motions, and is ever ready to screen them from danger. This instinctive warmth of attachment often discovers itself, even before she is capable of becoming a mother; which might be supposed to precede in the order of nature, the maternal solicitude, as thus finely exemplified by Buffon. "A young hen bird," says he, "was brought to

* Birds of Scotland, p. 3.

me in the month of May, which was not able to feed without assistance. I caused her to be educated, and she was hardly fledged, when I received from another place a nest of three or four unfledged sky-larks. She took a strong liking to these new-comers, which were scarcely younger than herself: she tended them night and day, cherished them beneath her wings, and fed them with her bill. Nothing could interrupt her tender offices. If the young ones were torn from her, she flew to them as soon as she was liberated, and would not think of effecting her own escape, which she might have done a hundred times. Her affection grew upon her; she neglected food and drink; she now required the same support as her adopted offspring, and expired at last consumed with maternal anxiety. None of the young ones survived her. They died one after another; so essential were her cares, which were equally tender and judicious."

The common food of the young sky-larks is worms and insects; but after they are mature they subsist chiefly on seeds, herbage, and most other vegetable substances.

They are easily tamed, and will become so familiar as to eat off the table, and even alight on the hand; but they cannot cling by the toes, on account of the form of the hinder claw, which is long and straight, and provided with a very long and sharp claw.

No bird is more generally diffused throughout Europe, than the sky-lark. They assemble in flocks, grow fat, and are caught in vast numbers by bird-catchers. As many as four thousand dozen have been taken in the neighbourhood of Dunstable, between September and February; but this holds no proportion to what are sometimes caught in different parts of Germany, where there is an excise duty upon them. Keysler says, that the duty alone produced about nine hundred pounds sterling every year in the city of Leipsic, the larks of which are famous all over Germany, as being of a most delicate flavour. But it is not only at Leipsic that they are taken in such vast numbers, as they are also very abundant in the country about Naumburg Merseburg, Halle and other parts.

Those that are caught in the day-time are taken in clap-nets of fifteen yards in length, and two and a half in breadth; and are enticed by means of bits of mirror fixed in a piece of wood,

and placed in the middle of the nets. These are put into a quick whirling motion, by a string which the larker commands ; he also makes use of a decoy bird. This kind of net is used only till the fourteenth of November ; for the larks will not frolic in the air, and of course cannot be inveigled in this manner, except in fine sunny weather. When the atmosphere grows gloomy, the larker changes his engine ; and makes one of a trammel-net, twenty-seven, or twenty-eight feet long, and five broad ; which is put into two poles, eighteen feet long, and carried by men, who pass over the fields, and quarter the ground in the manner of a setting-dog. When they hear or feel that a lark has hit the net, they drop it down, and thus the birds are taken.

It may be questioned whether the human mind could have shown more sagacity than is exhibited in the following case of instinct. A gentleman was travelling on horseback a short time since, in the west of Norfolk, when a lark dropt on the pommel of his saddle, and spreading its wings in a submissive manner, cowered to him. He stopped his horse, and sat for some time in astonishment, looking at the bird, which he supposed to be wounded, but on endeavouring to take it, the lark crept round him, and placed itself behind ; turning himself on the saddle, to observe it, the poor animal dropt between the legs of the horse and remained immoveable. It then struck him that the poor thing was pursued, and as the last resource, hazarded its safety with him. The gentleman looked up, and discovered a hawk hovering directly over them ; the poor bird again mounted the saddle, under the eye of its protector ; and the disappointed hawk shifting his station, the little fugitive watching his opportunity darted over the hedge, and was hid in an instant.

In October 1825, a gentleman in Salisbury had a common sky-lark, which he had kept for some time, and in its autumnal moult of that year, on the plumage being renewed, it was of a deep black. A white lark was shot in the neighbourhood of Kingston Rectory, near Canterbury, in October, 1828.

The following appeared in Bell's Weekly Messenger of the day. On Wednesday, the 6th of October, 1805, as a gentleman was sitting on the rocks at the end of Collercot's sands, near Tynemouth, Northumberland, dressing himself after bathing, he perceived a hawk in the air, in close pursuit of, and nearly

within reach of a lark. To save the little fugitive, he shouted and clapped his hands, when immediately the lark descended, and alighted on his knee, nor did it offer to leave him, when taken into the hand, but seemed confident of that protection, which it found. The hawk sailed about for some time. The gentleman, after taking the lark nearly to Tynemouth, restored it to its former liberty.

The lark roosts and nestles on the ground, most commonly among standing grass or corn, in open fields, or on downs covered with low bushes. Hence they evade the search of the nest-seeking boy, and also of the more fell destroyers, polecats, stoats, and weasels, that seek their prey in hedges. They are consequently numerous; and, congregating in winter in great flocks, are easily caught by the fowlers' snares, who send them to poulterers for supplying the tables of the epicure: cruel return for their summer harmony!

The lark is found in the whole of Europe within the temperate zone and in parts of Asia and Northern Africa. General colour, yellowish brown.

The Wood-Lark. This bird is somewhat scarce, and is limited in its distribution in Britain to the south and west of England. Like the preceding it is a sweet songster, generally singing on the wing, and sometimes for a whole hour without cessation. Occasionally it sings perched upon a decayed tree; but never on the ground. In colour it resembles the sky-lark. The other varieties are described in the notes to Goldsmith. They all differ from other small birds, in the greater length of the heel.

The Grasshopper Lark. White says, "Nothing can be more amusing than the whisper of this little bird, which seems to be close by, though at a hundred yards' distance; and, when close at your ear, is scarcely louder than when a great way off. Had I not been a little acquainted with insects, and known that the grasshopper kind is not yet hatched, I should have hardly believed, but that it had been a *locusta* whispering in the bushes. The country people laugh when you tell them that it is the note of a bird. It is a most artful creature, skulking in the thickest part of a bush, and will sing at a yard's distance provided it be concealed. I was obliged to get a person to go on the other side of the hedge where it haunted; and then it would run,

creeping like a mouse before us for an hundred yards together, through the bottom of the thorns, yet it would not come into fair sight ; but in the morning early, and when undisturbed, it sings on the top of a twig, gaping, and shivering with its wings.

The Black-cap. This bird is found in all parts of Britain, where it arrives towards the end of April. It is very shy, and chooses its haunts in the thickest woods and groves. The song of the black-cap is remarkably fine, and generally poured forth from the top of a tree. Colour of the head, black ; upper and under parts grey.

THE BLUE TITMOUSE.

The length of this bird is about four inches and a half ; and its weight about three drachms. The bill is dusky, irides dark hazel ; forehead and cheeks white ; that on the former inclines backwards, and forms a line round the crown of the head, which is of a fine blue ; behind the circle of white is another of a deep blue, surrounding the head entirely, and gaining the base of the under mandible, where it is nearly black ; from the bill through the eye is a small black line ; the back is of a yellowish green ; wings and tail blue ; breast and belly yellow ; legs lead colour.

This bird would be much admired for its beauty, if it were less common. In winter it frequents houses for the sake of plunder ; will devour flesh greedily, whether fresh or putrid ; and indeed is an omnivorous bird. It is a constant attendant where horse-flesh is kept for hounds, as well as the farm-yard, being partial to oats, which it plucks out, and retiring to a neighbouring bush, fixes the grain between its claws, and hammers it with its bill, to break the husk. In the summer, insects are its chief food, in search of which, it plucks off a number of young buds from fruit and other trees. The nest is always made in some hole, either of a tree or wall, composed of moss, and lined with feathers and hair. The female is tenacious of her nest, and will often suffer herself to be taken, rather than quit it, and will frequently return again after being taken out. Upon such an occasion it menaces the invader in a singular manner, erecting all its feathers, and hissing like a snake, or ut-

tering a noise like the spitting of a cat, and if handled, bites severely.

The common Tomtit has a great propensity to destroy bees ; as authenticated in the Magazine of Natural History ; which it effects by rapping with its bill at the entrance of the hive, and killing the insects as they come out. It is asserted that a whole hive was destroyed in this manner by this tiny depredator.

THE WREN.

The common wren is indigenous in Britain, and to be met with in all parts of it. We are told by a clever writer, that this little bird is familiar without impudence, busy and bustling in action, and extremely gallant in manners ; so much so, indeed, that every mild and sunny day in winter reminds him of *la jour de nocces*, (day of nuptials,) and excites him to pour forth his gay and lively songs. This, he adds, though short, is full of variety and sprightliness : it is a burst of joy, rapturous and loud ; beginning high, and graduated down to rather more than an octave below, and repeated at intervals of about a minute or two. The wren has a curious note of fear, resembling the winding up of a clock ; and his birring note of rebuke over the prowling cat, or prying owl, is most provokingly teasing.

A family in Newcastle had a wren which used to utter its peculiar note of terror when the cat approached its cage. The cat was a great favourite, and its master, instead of parting with it, had recourse to an ingenious experiment. He brought it several times a-day into the same apartment with the wren, and as soon as the latter began to scream, the man cuffed the cat's ears. This had the desired effect. In a short time the cat would run from the chiding of the wren with the utmost precipitation, regarding it, evidently, as the signal for its own punishment. The wren at last ceased to be afraid, and the cat and it became very good friends. Our informant adds that the wren began to know it had the power of terrifying the cat in its turn, but was willing to receive it into favour.

"The name of *Troglodyta*," says Professor Rennie, "applied to the wren by the older naturalists, and still continued by modern

systematists, is derived from an ancient race of people inhabiting Ethiopia, who dug hollow caves for their habitations ; but though the term might apply well to the kingfisher, the bank swallow, or other mining birds, it is but little appropriate to the wren, which neither digs nor inhabits caverns, and might as well be applied, as it is in Ainsworth's Dictionary, to the hedge-sparrow. It is indeed very usual for the wren to build under the brow of a river's bank, where the turf overhangs from being undermined by the stream ; but the bird seems equally partial to the shelter afforded by ivy on trees or walls, though it will often build under the fork of a bare overhanging bough, and I have now before me one built in the small upper spray of a hawthorn, though it will be found, perhaps more commonly still, sheltered under the projecting side of a haystack, or the overhanging thatch of a cottage eave."

In the instance of the redbreast, the hedge sparrow, and the wren, one can scarcely imagine how any of the species survive the winter, were it no more than the difficulty of procuring food. Selby, indeed, has noticed wrens perish in severe winters, particularly when accompanied by falls of snow. He says, "under these circumstances they retire for shelter into holes of walls, and the eaves of corn and hay stacks ; and I have frequently found the bodies of several together in old nests, which they had entered for additional warmth and protection during severe storms."

Mr Allan Cunningham informed professor Rennie, that he once found several wrens in the hole of an old wall, rolled up into a sort of ball, for the purpose, no doubt, of keeping one another warm during the night.

This pretty little bird, like the redbreast, frequently approaches the habitations of man, and enlivens the rustic garden with its song the greater part of the year. It begins to make its nest early in the spring, but frequently deserts it before it is lined, and searches for a more secure place.

A pair of wrens built their nest in a box, so situated that the family on the grounds had an opportunity of observing the mother's care in instructing her young ones to sing. She seated herself on one side of the opening of the box, facing her young, and commenced by singing over all her notes very slow and distinctly. One of the little ones then attempted to

imitate her. After chirping rather inharmoniously a few notes, its pipe failed, and it went off the tune. The mother immediately took up the tune where the young one had failed, and distinctly finished the remaining part. The young one made a second attempt, commencing where it had left off, and continuing for a few notes tolerably distinct, when it again lost the notes; the mother began again where it ceased, and went through with the air. The young one again resumed the tune and completed it. When this was done, the mother again sung over the whole of her song with great precision; and then another of the young attempted to follow it, who likewise was incapable of going through with the tune, but the parent treated it as she had done the first bird; and so on with the third and fourth. It sometimes happened that the little one would lose the tune, even three or four times in making the attempt; in which case the mother uniformly commenced where it had ceased, and always sung to the end of the tune; and when each had completed the trial, she always sung over the whole song. Sometimes two of them commenced the strain together, in which case, she pursued the same conduct towards them, as she had done when one sung. This was repeated at intervals every day, while they remained in their nest. General colour, a pale chestnut brown.

THE HOUSE WREN.

Audubon says, "From whence the house wren comes, or to what parts it retires during winter, it is more than I have been able to ascertain. Although it is extremely abundant in the States of Pennsylvania, New Jersey, Virginia, and Maryland, from the middle of April until the beginning of October, I have never been able to trace its motions, nor do I know any naturalist in our own country, or indeed any other who has been more fortunate.

"Its flight is short, generally low, and performed by a constant tremor of the wings without any jerks of either the body or tail, although the latter is generally seen erect, unless when the bird is singing, when it is always depressed. When passing from one

place to another, during the love-season, or whilst its mate is sitting, this sweet little bird flutters still more slowly through the air, singing all the while. It is sprightly, active, vigilant, and courageous. It delights in being near and about gardens, orchards, and habitations of man, and is frequently found in abundance in the very centre of our eastern cities, where many little boxes are put up against the walls of houses, or the trunks of trees, for its accommodation, as is also done in the country. In these it nestles and rears its young. It is seldom, however, at a loss for a breeding place, it being satisfied with any crevice, or hole in the walls, the sill of a window, the eaves, the stable, the barn, or the upper side of a piece of timber under the roof of a piazza. Now and then, its nest may be seen in the hollow branch of an apple tree. I knew of one in the pocket of an old broken down carriage, and many in such as an old hat.

“The familiarity of the house wren is extremely pleasing. In Pennsylvania a pair of these birds had formed a nest, and the female was sitting in a hole of the wall, within a few inches of my (literally so-called) drawing-room. The male was continually singing within a few feet of my wife and myself, whilst I was engaged in portraying birds of other species. When the window was open, its company was extremely agreeable, as was its little song, which continually reminded us of its happy life. It would now and then dive into the garden at the foot of the window, procure food for its mate, return and creep into the hole where it had its nest, and be off again in a moment. Having procured some flies and spiders, I now and then threw some of them towards him, when he would seize them with great alacrity, eat some himself, and carry the rest to his mate. In this manner, it became daily more acquainted with us, entered the room, and once or twice sung whilst there.

“Wilson says, in the month of June a mower hung up his coat, under a shed, near the barn; two or three days elapsed before he had occasion to put it on again; thrusting his arm up the sleeve, he found it completely filled with some rubbish, as he expressed it, and on extracting the whole mass, found it to be the nest of a wren completely finished, and lined with a large quantity of feathers. In his retreat, he was followed by the little forlorn proprietors, who scolded him with great vehemence, for thus ruining the whole economy of their household affairs.

The twigs with which the outward parts of the nest are constructed are short and crooked, that they may the better hook in with one another, and the hole or entrance is so much shut up, to prevent the intrusion of snakes, or cats, that it appears almost impossible the body of the bird could be admitted; within this is a layer of fine dried stalks of grass, and lastly feathers. The eggs are six or seven, and sometimes nine; of a purplish flesh colour, innumerable grains of a pale tint being thickly sprinkled over the whole egg. They generally raise two broods in a season; the first about the beginning of June, the second in July.

This little bird has a strong antipathy to cats; for having frequent occasion to glean among the currant bushes, and other shrubbery in the garden, these lurking enemies of the feathered race often prove fatal to him. A box fixed up in the window of the room where I slept, was taken possession of by a pair of wrens. Already the nest was built, and two eggs laid, when one day the window being open, as well as the room door, the female wren, venturing too far into the room to reconnoitre, was sprung upon by grimalkin, who had planted herself there for the purpose; and, before relief could be given, was destroyed. Curious to see how the survivor would demean himself, I watched him carefully for several days. At first he sung with great vivacity for an hour or so, but, becoming uneasy, went off for half an hour; on his return he chanted again as before, went to the top of the house, stable, and weeping willow, that she might hear him; but seeing no appearance of her, he returned once more, visited the nest, ventured cautiously into the window, gazed about with suspicious looks, his voice sinking to a low melancholy note, as he stretched his little neck about in every direction. Returning to the box he seemed for some minutes at a loss what to do, and soon after went off, as I thought, altogether, for I saw him no more that day. Towards the afternoon of the second day, he again made his appearance, accompanied by a new female who seemed exceedingly timorous and shy, and who, after great hesitation, entered the box; at this moment the little widower or bridegroom seemed as if he would warble out his very life with ecstasy of joy. After remaining about half a minute in, they both flew off, but returned in a few minutes, and instantly began to carry out the eggs, and feathers, and some of the sticks, supplying the place of the latter with

materials of the same sort ; and ultimately succeeded in raising a brood of seven young, all of which escaped in safety."

Mr Simpson mentions, that, during his residence at Welton, North America, he one morning heard a loud noise from a pair of martins that were flying from tree to tree, near his dwelling. They made several attempts to get into a box, fixed against the house, which they had before occupied as a breeding place ; but they always appeared to fly from it again with the utmost dread, at the same time repeating their usual loud cries. Curiosity led the gentleman to watch their motions. After some time, a small wren came from the box, and perched on a tree near it, when her shrill notes seemed to amaze her antagonists. Having remained a short time she flew away, when the martins took an opportunity of returning to the box, but their stay was of short duration ; for their diminutive adversary returned, and made them retreat with the greatest precipitation. They continued manoeuvring in this way the whole day ; but the following morning, on the wren quitting the box, the martins immediately returned, took possession of their mansion, broke up their own nest, went to work afresh with much diligence and ingenuity, and soon barricaded their door. The wren returned, but could not now re-enter. She made some bold efforts to storm the nest, but was unsuccessful. The martins abstained from food for nearly two days, persevering during the whole time in defending the entrance ; and the wren, after many bold but fruitless attempts to force the works, raised the siege, quitted her intentions, and left the martins in quiet possession of their dwelling.

THE GOLDEN-CRESTED WREN.

This is the smallest of the British birds, and is found every where throughout the kingdom. Its song is weak and intermittent, yet sweet as that which fancy attributes to the fairy on a moonlight hill. It is inaudible at a small distance, unless in calm weather.—On the 24th and 25th of October, 1822, says Mr Selby, after a very severe gale, with thick fog, from the North East, (but veering, towards its conclusion, to the east and south of east,) thousands of these birds were seen to arrive

upon the sea-shore and sand-banks of the Northumbrian coast ; many of them so fatigued by the length of their flight, or perhaps by the unfavourable shift of wind, as to be unable to rise again from the ground, and great numbers were in consequence caught or destroyed. This flight must have been immensely numerous, as its extent was traced through the whole length of the coasts of Northumberland and Durham. There appears little doubt of this having been a migration from the more northern provinces of Europe, (probably furnished by the pine forests of Norway, Sweden, &c.,) from the circumstance of its arrival being simultaneous with that of large flights of the woodcock, field-fare, and redwing. Although I had never before witnessed the actual arrival of the gold-crested regulus, I had long felt convinced, from the great and sudden increase of the species, during the autumnal and hyemal months that our indigenous birds must be augmented by a body of strangers making these shores their winter's resort.—A more extraordinary circumstance in the economy of this bird took place during the same winter, viz. the total disappearance of the whole tribe, *natives* as well as strangers, throughout Scotland and the north of England. This happened towards the conclusion of the month of January 1823, and a few days previous to the long-continued snow-storm so severely felt throughout the northern counties of England, and along the eastern parts of Scotland. The range and point of this migration are unascertained, but it must probably have been a distant one, from the fact of not a single pair having returned to breed, or pass the succeeding summer, in the situations they had been known always to frequent. Nor was one of the species to be seen till the following October, or about the usual time, as I have above stated, for our receiving an annual accession of strangers to our own indigenous birds.* The golden-crested wren is hardy enough for our usual winters, and its favourite haunts are woods where the fir-tree abounds. It is so very tame as to remain stationary, when closely approached by man, and may be caught by striking the branch upon which it is perched. It then falls down, and generally dead with alarm. Thus, though unsuspicious, it is timid. Persons who wish them for stuffing, recommend this plan as preferable to employing a gun, their skins being tender and are frequently too much lacer-

* Selby's Ornithology.

rated by the shot.—Colour, on the crown of the head, whose feathers are soft and elongated, orange and yellow. Prevailing colour of the body, yellow of different shades.

The Willow-Wren. The willow or yellow wren, is a periodical visitant of Britain, and arrives in April. It has been confounded with the wood-wren, and lesser petty chaps, but it arrives sooner than the former; and its yellow legs sufficiently distinguish it from the latter, whose legs are dark-brown. Yellow is its prevailing colour, as its name implies.

The Wood-Wren. This bird resembles the former species, both in appearance and habits, and was long deemed identical with it.

The White-Ear, the stone-chat, and the whin-chat all agree in their food, habits, and localities. They are all common to the old continent, and inhabit moorlands and other wastes.

We shall now speak of the Wagtail genus, and first of

The Pied Wagtail. This bird frequents the vicinity of streams, and is partial to smooth shaven meadows, where it pursues by running, and short quick flights, the insects upon which it feeds. It is very tame, and even when intentionally disturbed, will remove only to a short distance, continuing, as it retreats, to pick up its prey. During the pairing season it warbles a pleasant song, and may be often seen perched on the cottage-roof, or the wall of the farm-yard. It feeds also on the larvæ of insects, and on worms. Its colours are black and white, varying, however, in diffusion, at different seasons. The pied wagtail remains throughout the year in the south of England; in the north, including Scotland, it is migratory, retiring in October, and reappearing in February or March.

The Grey Wagtail. This is a handsomer bird than the former, and resembles it in its habits and localities. It may be often seen wading in shallows, in pursuit of aquatic insects, and seems, as it jerks about, to be merely amusing itself. It is a winter visitant in England, and a summer one in the northern parts of the kingdom.

The Yellow Wagtail. This is not so plentiful a species as the two preceding. It comes to Britain in spring; goes to the southern parts in August, and migrates in September, for warmer climates. In habits it resembles its congeners. These are the birds of the wagtail kind, which visit this kingdom. We shall

now mention the Pipits, a class of birds which naturalists have but lately separated from that of the Larks proper. They differ from the latter in the conical form of the head, and in their habits also. Those common to Britain, are the *Rock* or *Shore Pipit*, the *Meadow Pipit* or *Tit*, and the *Tree Pipit*.

The Rock or *Shore Pipit*. This bird frequents rocky and precipitous shores, where it braves the severest storms of winter, or sings to the summer waves. It was long unknown to ornithologists, owing, as Mr Selby supposes, to its peculiar localities. General colour, green above, and pale yellow on the under parts.

The Meadow Pipit or *Tit*. This bird is now ascertained to be the same with the pipit lark. It remains in Britain during the whole year, and frequents alike the loftiest and the lowest localities. The cuckoo sometimes honours the nest of the Meadow Tit with her egg. The general colour may be inferred from the provincial name *Grey Cheeper*.

The Tree Pipit. This is a larger bird than the preceding,—but resembles it so much in plumage, as to be readily mistaken for it. It is migratory, and while in this kingdom, frequents the borders of woods surrounded by cultivation. According to Montagu, when this bird descends from its soar, it perches on a tree previous to alighting on the ground; and on rising from the ground, makes the bough of a tree its stage, previous to a high flight.

THE CANARY AND OTHER HARD-BILLED SONG BIRDS.

BIRDS of this class are esteemed for the beauty of their plumage, their powers of song, and their susceptibility of being taught. In the last respect, they perhaps excel the soft-billed songsters, as they are certainly inferior to them in natural delicacy of modulation.

THE CANARY.

This bird is a native of the Canary islands ; where his plumage is said to be of a dusky gray colour, and his voice more powerful than when in a domestic state. If he could still farther diminish its strength, he would be less offensive when caged in a small apartment. As it is, the shakes of his boisterous song, come ringing through the head of the unwilling listener with such searching keenness, that he feels as if it, and not the cage, enclosed the bird. The sound is very pleasant, however, when mellowed by distance, and the bird may be taught to imitate the nightingale and other songsters. It becomes remarkably tame and familiar when kindly treated, and often exhibits great sagacity.

There are two distinct varieties of canaries, the plain and the variegated ; these two are more esteemed by amateurs, than any of the other numerous intermediate varieties, all of which have sprung from these two. The first property of these birds consists in the plumage being of a deep yellow over every part of the body, except the tail and wings, and possessing the utmost regularity, without any black feathers, as, by the smallest speck it loses the property of a show bird. The second property con-

sists in the feathers of the wing and tail being of a deep black up to the quill, as a single white feather in the wing destroys its value in the estimation of the curious breeder. It is, however, frequently the case, that the finest coloured birds have one or two feathers marked, which lowers their value, although they may still be matched to breed with.

Buffon beautifully describes the canary: he says, "that if the nightingale is the chauntress of the woods, the canary is the musician of the chamber; the first owes all to nature, the second something to art. With less strength of organ, less compass of voice, and less variety of note, the canary has a better ear, greater facility of imitation, and a more retentive memory; and as the difference of genius, especially among the lower animals, depends in a great measure on the perfection of their senses, the canary, whose organ of hearing is more susceptible of receiving foreign impressions, becomes more social, tame, and familiar; is capable of gratitude and even attachment; its caresses are endearing, its little humours innocent, and its anger neither hurts nor offends. Its education is easy; we hear it with pleasure, because we are able to instruct it. It leaves the melody of its own natural note, to listen to the melody of our voices and instruments. It applauds, it accompanies us, and repays the pleasure it receives with interest; while the nightingale, more proud of its talent, seems desirous of preserving it in all its purity, at least it appears to attach very little value to ours, and it is with great difficulty it can be taught any of our airs. The canary can speak and whistle; the nightingale despises our words, as well as our airs, and never fails to return to its own wild-wood notes. Its pipe is a master piece of nature, which human art can neither alter nor improve; while that of the canary is a model of more pliant materials, which we can mould at pleasure; and therefore it contributes in a much greater degree to the comforts of society. It sings at all seasons, cheers us in the dullest weather, and adds to our happiness, by amusing the young, and delighting the recluse, charming the tediousness of the cloister, and gladdening the soul of the innocent and captive."

No bird becomes more tame and free than the canary. We lately had one, which we allowed to fly about our room, and he became so familiar, that he would sit close to us on the table, and fight with our finger if held out to him. If he happened to

be in his cage, and we called out Dickie to him, he would immediately appear at the door of the cage, and look down upon us, and if we repeated the call, he flew down to the back of our chair, or on the table, and chattered to us as if conversing. He would perch on our finger and fight with us, and even alighted on our head. In short, nothing could exceed his familiarity. He was one of the handsomest birds we have ever seen, and his colour of the most beautiful golden yellow, little inferior in depth of shade to the oriole. But alas! like most other pets, he caused us much sorrow, for being one day put out at the window, so that he might enjoy the cheering rays of the sun, the door of his cage was unfortunately left open, and he flew away, never more to be seen by us. He had before been frequently at large out of doors, but he was so tame, that he always returned to his cage when held out to him.

Mr Patrick Syme had a canary that used to nibble at his cage till he opened it, and then escaping from its prison house, it would fly to the mantelpiece, where it would place itself on a china ornament, flutter, as if in the act of washing, and continued to do so till the water was brought. The same bird was so docile, as to come when called to the hand, and hide trifling articles in the corner of the cage, stopping and looking round as if for encouragement and applause. But one of his favourite amusements was to perch upon the branch of a small myrtle in a window where the cage frequently hung; and he even became so bold, as to dart upon the ephemeral insects that rose from a stream close by, and which seemed to afford him a delicious banquet. Poor Dickie was, however, doomed to suffer for this indulgence, and one morning was found dead in his cage, having been killed by a young pointer, a privileged vagrant like himself.

Frequent attempts to naturalize the canary have been made in this country, but these have all proved abortive. They seem quite unable to stand the severity of our winters out of doors. Mr Syme mentions having seen a pair of these birds flying about at liberty, on the precipitous bank at St Bernard's well, near Edinburgh.

The nest of a goldfinch, containing six young ones, was taken from a tree near Inverness, and the parent birds were immediately afterwards secured. They were all placed in one end of

a large breeding cage, which was divided by a row of wires only. The other end was occupied by a pair of canaries with their young. The old goldfinches seemed to have little regard for their young, and had nearly starved them by want of attention. The cock canary, attracted by the cries of the hungry brood, forced his way through two of the wires which were more open than the rest, and commenced feeding them, and continued to do so until the old goldfinches took the task upon themselves, and rendered his benevolent solicitude no longer necessary.

Lord Kaimes relates a circumstance of a canary, which, in singing to his mate hatching her eggs, fell dead. The female quitted her nest, and finding him dead, rejected all food and died by his side.

At a public exhibition of birds, some years ago, a canary had been taught to act the part of a deserter, and flew away, pursued by two others, who appeared to apprehend him. A lighted candle being presented to one of them, he fired a small cannon, and the little deserter fell on one side, as if killed by the shot. Another bird then appeared with a small wheel-barrow, for the purpose of carrying off the dead, but as soon as the barrow came near, the little deserter started to his feet.

In April, 1829, a widow lady of Glasgow had in her possession a beautiful mule-bird, betwixt the canary and goldfinch, which was in the highest health and spirits and plumage. He sung with as much vigour as he did fourteen years before, being at that time fifteen years of age.

A canary belonging to a family in Glasgow, will, when its washing-dish has been upset, or withheld by mistake, seize its waterglass by the stalk, and shake out the contents over its head and body, till the feathers get sufficiently wetted.

The following is a singular instance of constitutional peculiarity. "On observing," says Dr Darwin, "a canary bird at the house of a gentleman near Sutbury, in Derbyshire, I was told it always fainted away when its cage was cleaned; and I desired to see the experiment. The cage being taken from the ceiling, and the bottom drawn out, the bird began to tremble, and turned quite white about the root of the bill; he then opened his mouth as if for breath, and respired quick; stood up straighter on his perch, hung his wing, spread his tail, closed his eyes, and appeared

quite stiff for half an hour, till at length, with trembling and deep respirations, he came gradually to himself."

THE GOLDFINCH.

This beautiful bird has a sweeter natural song than the preceding. It is very docile, and capable of strong attachment to its owner. Mr Selby is, we think, wrong in saying that the goldfinch is not common in mountainous localities. In the west Highlands of Scotland, they are, at all events, caught in immense numbers during a snowy winter, and we have repeatedly seen them offered for sale at the lairds' houses, often so many in a cage, that they seemed in danger of smothering one another. A penny; or two pence at most, was charged for each.

It was very early in the spring of 1827, says a contributor to the Magazine of Natural History, that a bird had been lost from a cage, which was still hanging up with the door open, in the passage entrance to the back court of a gentleman's house in Exmouth, when a goldfinch was one morning found feeding in it, and the door was closed upon it; but, on inspection, as it appeared to be a female, it was very shortly after restored to liberty. In the space, however, of about two hours it returned, and entered the cage, when it was again shut in, and again liberated; and these visits were repeated daily for a considerable time. She was then missing for some few days, but then returned, accompanied by a male bird; she entered the cage, and fed as usual; but her companion, after perching on the outside of the cage, retired to a neighbouring tree until she joined him. They then quitted and were no more thought of; but at the end of about seven or eight weeks, she again made her appearance, and accompanied not by her former companion, but by four young ones, when she again entered the cage and fed as usual; but as she could not induce her brood, (for such they were presumed to be) to follow her example, she finally went off with them, and has not since that time made her appearance.

The species is subject to considerable variety of colours and

when exclusively fed on hemp-seed, will lose its red and yellow for a black plumage.

THE BULLFINCH.

This bird has been said erroneously to have no native song. It is so low, however, as to be audible only when he is close at hand. He is capable of learning a tune with ease and correctness, and may be taught to perform a variety of tricks. His appearance is as sedate as his habits are solitary.

A farmer in the parish of Mearns had a bullfinch which he taught to whistle some plaintive old Scottish airs. He reluctantly parted with the bird for a sum of money, which his narrow circumstances at the time compelled him to accept of; but inwardly resolved, if fortune should favour him, to buy it back, cost what it would. At the end of half a year or so, a relation died leaving him a considerable legacy. Away he went the very day after he got intelligence of this pleasant event—(his relation had been a miser, and they had never held much intercourse with each other) and asked the person who had purchased the bullfinch, if he would sell it again, telling him to name his own price. The man would not hear of parting with the bird. The farmer begged just to have a sight of it and he would be satisfied. This was readily agreed to; so, as soon as he entered the room where the bullfinch was kept, he began to whistle one of the fine old tunes which he had formerly taught it. The bullfinch remained in a listening attitude, for a minute or two, then it grew restless, as if struggling with some dim recollection,—then it moved joyously to the side of the cage, and all at once it seemed to identify its old master, who had no sooner ceased, than it took up the tune, and warbled it with the tremulous pathos which marked the manner of its teacher. The effect was irresistible, the poor farmer burst into tears, and the matter ended by his receiving the bullfinch in a present; but report says, to his credit, that he insisted on making a present of money in return.

This bird, like the preceding, sometimes grows black when in confinement; a change attributed to the same cause, viz., too

great use of hemp-seed. It has been met with, more or less white, in a wild state.

THE COMMON OR BROWN LINNET.

This bird, which is termed also the *Rose Linnet*, and *Gray Linnet*, has a very sweet, though short song. It is beautifully described by an author whom we have already several times quoted, and whose style our readers will readily recognise.—“Me thinks,” says he, “we hear the ‘song o’ the grey lintie,’ perhaps the darling bird of Scotland. None other is more tenderly sung of in our old ballads. When the simple and fervent love poets of our pastoral times, first applied to the maiden the words, ‘my bonny burdie,’ they must have been thinking of the grey lintie, its plumage ungaudy and soberly pure, its shape elegant, yet unobtrusive,—and its song various without any effort,—now rich, gay, sprightly, but never rude or riotous,—now tender; almost mournful, but never gloomy or desponding. So, too, are all its habits endearing and delightful. It is social, yet not averse to solitude, singing often in groups, and as often by itself in the furze-brake, or on the briary knoll. You often find the lintie’s nest in the most solitary places, in some small self-sown clump of trees by the brink of a wild hill-stream, or on the tangled edge of a forest; and just as often you find it in the hedge row of the cottage garden, or in a bower within, or even in an old gooseberry bush that has grown into a sort of tree.”—The common linnet is plentiful throughout Britain. Owing to the change of colour which it undergoes at different ages and seasons, it has been mentioned both as linnet and greater red-pole, by many authors, and among the rest Bewick. Montague first assigned the cause of the mistake, and his statement has been confirmed by Mr Selby, whose words we shall here quote. If Mr Bewick’s observations on the plumage of the linnet were made upon caged birds, I am not surprised at his assertion of its always retaining the same appearance, for I have repeatedly verified the fact of its never acquiring under confinement, those brilliant tints which distinguish it at a particular period of the year, when in a state of liberty. I will adduce one instance

strikingly to the point in question. For some particular purpose of observation, a linnet was shot more than two years ago, towards the close of summer, when the plumage showed its most perfect nuptial tint; and happening to be only winged, it was put into a cage, where it soon became familiarized to its situation, and still continues. About the usual time, in the autumn of that year, it moulted, and acquired the winter-dress of the common linnet, which it has retained ever since, without displaying, at the accustomed season, any of the brilliant red that adorned it in the wild state.*

This linnet can be taught to repeat several words with wonderful distinctness, and acquires with facility, tunes, and the notes of other birds.

The Mountain Finch or Brambling. This bird ought to have been mentioned among the tuneless finches; but the extreme handsomeness of his appearance may well entitle him to rank above most of them, so that there is nothing very incongruous in introducing him here, though he is no singer: he belongs moreover to the genus we have been describing. The brambling is a native of the north of Europe, and inhabits the wildest and highest localities. It comes to this kingdom only in winter, varying in numbers according to the state of the weather. Colour on the upper parts black, the feathers fringed with yellow;—under parts reddish-brown upon the neck and breast, and yellowish-white upon the belly, rump, and under tail coverts. Coverts of the secondary quills black, tipped with reddish-orange. Greater quills, with a white spot at the base, and the margins of the outer webs primrose yellow, &c.

* Selby's Ornithology.

THE SWALLOW AND ITS CONGENERS.

How these birds dispose of themselves in winter, has long been, and still continues to be, a question among naturalists. We shall postpone the examination of this point till we have described the known habits of the different species.

THE HOUSE SWALLOW.

The house-swallow or martin is generally diffused throughout Britain, and is always to be met with near human dwellings, where its confidence in human protection, for the most part meets with a suitable return. "I never knew," says Wilson, "but one man who disliked the martins, and would not permit them to settle about his house: this was a penurious close-fisted German, who hated them because, as he said, 'they eat his *peas*.' I told him he certainly must be mistaken, as I never knew an instance of martins eating peas; but he replied with coolness, 'that he had many times seen them himself blaying near the hive, and going *schnip schnap*,' by which I understood that it was his bees that were the sufferers; and the charge could not be denied."

At Greenhill, the seat of Alexander Govan, Esq., in the parish of Shotts, several martins' nests were blown down during a severe gale. The birds which had escaped the calamity, assisted the sufferers to rebuild their nests, which were thus ready for occupation in at least one tenth of the time which would otherwise have been required.

The following delightful lines to a swallow, are the produc-

tion of Mr Thomas Aird, (a well known writer in Blackwood's Magazine), and first appeared in the " Republic of Letters.

" The swallow is a bonnie bird, comes twitt'ring o'er the sea,
And gladly is her carol heard for the sunny days to be ;
She shares not with us wint'ry glooms, but yet, no faithless thing,
She hunts the summer o'er the earth with little wearied wing.

The lambs like snow all nibbling go upon the ferny hills,
The gladsome voice of gushing streams the leafy forest fills,
Then welcome, little swallow, by our morning lattice heard,
Because thou com'st when nature bids bright days be thy reward.

Thine be sweet mornings with the bee that's out for honey dew,
And glowing be the noontide for the grasshopper and you :
And mellow shine o'er day's decline, the sun to light thee home,
What can molest thy airy nest ? sleep till the day-spring come.

The river blue that rushes through the valley hears thee sing,
It murmurs much beneath the touch of thy light dipping wing ;
The thunder-cloud above us bow'd in deeper gloom is seen,
When quick relieved it glances to thy bosom's silvery sheen.

The silent power that brought thee back, with leading strings of love
To haunts where first the summer sun fell on thee from above,
Shall bind thee more to come aye to the music of our leaves,
For here thy young, where thou hast sprung, shall glad thee in our eyes.

Oh ! all thy life's one pleasant hymn to God who sits on high,
And gives to thee o'er land and sea the sunshine of his sky ;
And aye the summer shall come round because it is his word,
And aye will welcome back again its little travelling bird."

" I remember no bird," says Mr Knapp, " that seems to suffer so frequently from the peculiar structure of its nest, and, by reason of our common observance of its sufferings, obtains more of our pity than the house martin. The rook will at times have its nest torn from its airy site or have its eggs shaken from it by the gales of spring ; but the poor martin, which places its earthly shed beneath the eave of the barn, the roof of the house, or the corner of the window, is more generally injured. July and August are the months in which these birds usually bring out their young ; but one rainy day at this period, attended with wind, will often moisten the earth that composes the nest, the cement then fails, and all the unfledged young ones are dashed upon the ground ; and there are some places to which these

poor birds are unfortunately partial, though their nests are annually washed down.”*

The martin makes its appearance with us in the month of April, and takes its final departure in November. General colour black on the upper, and white on the under parts. Legs and toes clothed with soft white feathers.

A gentleman residing at Lynn Regis, mentions in the Magazine of Natural History, that as he was walking in a clear afternoon in May, 1830, through a secluded village lane, he observed a stoat (*Mustela erminea*) issue from a hedge, and place itself in the path a few yards before him. Presently a martin which was wheeling about the place, got sight of the little animal—pounced upon it, and forced it to return to its hiding place. In a minute the stoat reappeared, and the same result followed, as it did twice afterwards. At length tired of the annoyance, the stoat made a final retreat and was seen no more. The stoat was out of time, if not out of place, being a night prowler, and perhaps felt conscious of this;—for otherwise it would have made small scruple of encountering a dozen such opponents.

The writer does not attempt to account for the conduct of the swallow. We can scarcely suppose it meant to revenge a former injury. The unusual appearance of such an animal as the stoat might excite the bird's curiosity, or its anger perhaps, as the appearance of an owl under such circumstances would have done.

At Strathendry Bleachfield, in Fifeshire, some years ago, a sparrow had taken possession of an old swallow's nest, and had laid some eggs in it early in the spring before the arrival of these birds; who, it is well known, always return to their old abode, after having migrated for the winter. At the usual season the owner of this nest made her appearance, and naturally claimed possession. The swallow, however, no doubt knowing that “possession is nine points of the law,” refused to abandon a domicile which appeared so comfortable: a small battle ensued, in which the female swallow was joined by her mate, and afterwards by several others of their species. All the efforts of the assembled assailants were however ineffectual, and the usurper boldly maintained her place. Finding themselves completely

* Journal of a Naturalist.

foiled in their object, it would appear that they had held a council of war to consult on ulterior measures ; and the resolution they came to, proves that the higher sentiments of right and justice had been called into action. Since the old sparrow could not be dispossessed of the nest, the next question appears to have been how she could be punished for her unlawful usurpation of a property unquestionably the legitimate right of its original constructor. The council were unanimous in their opinion, that nothing short of the death of the intruder could adequately atone for this attempt at maintaining illegitimate possession of her neighbour's property. Having thus resolved, they proceeded to put in execution their sentence in the following remarkable manner. They all quitted the scene of contest, and after a short interval returned with a reinforcement of numbers, each bearing a beakful of clay, and without offering the sparrow any molestation they instantly set to work, and built up the entrance into the nest, enclosing the sparrow within the clay tenement, and leaving her to perish in the garrison she had so gallantly defended.

This extraordinary circumstance was witnessed by Mr Gavin Inglis of Strathendry Bleachfield, on the banks of the Leven.

A precisely similar circumstance took place with swallows, at Portobello, near Edinburgh, about thirty-five years ago ; the conflict and other circumstances were witnessed by the late Mr Jamieson of Portobello, the scene of warfare having taken place in the corner of one of his windows.

In June 1816 a party of young gentlemen repaired to the banks of the Leven, in quest of Duck-shooting, but in which they were disappointed, and having no other amusement, fired at some swallows, which were skimming the smooth surface of the water at Strathendry Bleachfield, and among others killed both the parents of a nest situated in the corner of one of the windows of Mr Inglis's house, thus depriving a brood of five helpless birds of their natural protectors and providers. Conceiving the young ones would naturally perish, Mr Inglis resolved to take them into his house, and try to bring them up, under the care of his family, who had undertaken to catch flies for them, and being all young were delighted at the prospect of watching the progress of the callow brood. This humane interposition, however, was found unnecessary ; as the news of the bereavement had spread over the whole neighbouring colony, and a number of

swallows had congregated at the nest of the orphans. The state of the nest and the young were carefully examined by these thoughtful birds, and arrangements were immediately made for the protection and support of these helpless little animals. A supply of food was brought them, before the night set in, and next morning, the same care was bestowed on them, which was continued with such punctuality, that the young orphans were among the first of the season to fly from their nest.

A gentleman of Brenchley having shot a hen swallow, which was skimming the air along with her mate, the enraged partner immediately flew at the sportsman, and, as if to revenge the death of his partner, struck him in the face with its wing, and continued to fly round him, screaming with rage. Whenever this gentleman walked out, he was generally met by this swallow, who never failed to assail him. It was curious, however, that on Sundays it did not recognise him, as he was differently dressed.

In one corner of the piazza of a house, a swallow had erected her nest, while a wren occupied a box, which was purposely hung in the centre. They were both much domesticated. The wren became unsettled in its habits, and formed a design of dislodging the swallow, and having made an attack, actually succeeded in driving her away. Mr St. John, narrator of the story, says, "Impudence gets the better of modesty; and this exploit was no sooner performed than the wren removed every part of the materials to her own box, with the most admirable dexterity. The signs of triumph appeared very visible; it fluttered with its wings with uncommon velocity, and an universal joy was perceivable in all its movements. The peaceable swallow, like the passive Quaker, meekly sat at a small distance, and never offered the least opposition. But no sooner was the plunder carried away, than the injured bird went to work with unabated ardour, and in a few days the depredations were repaired."

A swallow's nest built in the west corner of a window facing the north, was so much softened by the rain beating against it, that it was rendered unfit to support the superincumbent load of five pretty full grown swallows. During a storm the nest fell into the lower corner of the window leaving the young brood exposed to all the fury of the blast. To save the little creatures from an untimely death, the owner of the house benevolently caused a

covering to be thrown over them, till the severity of the storm was past. No sooner had it subsided than the sages of the colony assembled, fluttering round the window, and hovering over the temporary covering of the fallen nest. As soon as this careful anxiety was observed, the covering was removed, and the utmost joy evinced by the group, on finding the young ones alive and unhurt. After feeding them the members of this assembled community arranged themselves into working order. Each division taking its appropriate station, commenced instantly to work, and before night-fall, they had jointly completed an arched canopy over the young brood in the corner where they lay, and securely covered them against a succeeding blast. Calculating the time occupied by them in performing this piece of architecture, it appeared evident that the young must have perished from cold and hunger before any single pair could have executed half the job.

In the summer of 1831, some boys, through wanton mischief, had thrown a stone at a swallow's nest in the corner of a window at Musselburgh; and having struck it, the whole fabric, with a half fledged brood, fell on the window sole. The possessor of the house, being a lover of nature, had encouraged the swallows which bred in his window, and felt deeply affected at the misfortune which had befallen their yet helpless offspring. He determined on assisting the parents in this trying exigency; and having driven a nail into the side of the window as high as possible, he suspended thereto a bird-cage, in which he deposited the helpless brood of young swallows. The parent birds immediately resumed feeding the young ones, and continued to do so till they were perfectly fledged. They had no fear of the inmates of the house, who very often stood close to the window to watch their motions.

THE CHIMNEY-SWALLOW.

This bird generally makes its nest in chimneys, and hence its specific name, which is, however, more applicable to it in England than in Scotland. In the latter country, according to Mr Rennie, it prefers barns and outhouses. Bewick relates the following

case of its selecting the inside of a dwelling house.--At Cameron Hall, near Bath, a pair built their nest on the upper part of the frame of an old picture over the chimney, coming into the room through a broken pane in one of the windows. They came three years successively, and in all probability would have continued to do so if the room had not been put in repair, which prevented their access to it.

In 1829, says Mr Rennie, we observed about a dozen of these nests, suspended from the rafters of a large coach-house at the village of Hockheim, on the Maine.—Mr White remarks, that he has known a swallow build down the shaft of an old well, through which chalk had been formerly drawn up for the purpose of manure. To us this is not at all remarkable; for we have seen them very commonly build in the shafts of coal-pits, such as at Sorn, in Ayresshire; Quarreltown, Renfrewshire; and Musselburgh, near Edinburgh. What was more singular, they did not seem deterred by the continual passing and repassing of the workmen, who consider it unlucky to injure the birds; and though they might, for the most part, find a sufficient number of old abandoned shafts, they do not appear to have any peculiar preference for these.*

It makes its appearance in this country a few days earlier than the preceding species, and leaves it about the same time. Colour, on the forehead and throat, deep orange brown. Upper parts black, and under-parts reddish-brown. Tail and wings longer than those of the preceding. The tail is also more deeply forked. Its flight is more rapid, and attended with more "sudden evolutions."

THE SWIFT.

This bird, termed also the black martin, makes its nest in uninhabited buildings, and what is fabled of the bird of paradise holds true with regard to it; it never alights upon the ground, the shortness of its legs and the length of its wings being such that it could not rise again. It can easily, however, cling to

* Architecture of Birds.

the perpendicular faces of walls and rocks, by means of its claws, and can swim away with ease from their brink. The swift visits this country towards the end of May, or the beginning of June, and departs in August, fully a month earlier than the swallows. It is now generally regarded by naturalists as a distinct genus, though it resembles the swallows in its habits. Like them it lives on insects, and constructs its nest of soft materials cemented together. We shall here mention one of its distinctive peculiarities, viz. that its four toes all point forwards. Colour on the throat dingy grey, and elsewhere greenish-black.

THE CAPE SWALLOW.

My late excellent friend, Captain Carmichael, celebrated for his acute and minute observations on the natural history of various countries, in which he served, relates the following fact respecting the Cape swallow. The swallows of all countries, like those which are bred here, are migratory. Those of the Cape return to it in the month of September, and quit it again in March or April. Captain Carmichael happening to be stationed for some time at the eastern extremity of the colony, a pair of Cape swallows (*the Hirundo Capensis*,) soon after their arrival, built their nest on the outside of the house where he lodged, fixing it against the angle formed by the wall, with the board which supported the eaves. The whole of this nest was covered in, and it was furnished with a long neck or passage, through which the birds entered and came out. It resembled the longitudinal section of a Florence oil flask. This nest having fallen down after the young birds had quitted it, the same pair, as he was inclined to believe, built again on the old foundation, in the month of February following, but he remarked, on this occasion, an improvement in the construction of it, which can hardly be referred to the influence of mere instinct. In building the first, the birds were contented with a single opening, but this one was furnished with an opening in both sides; and on watching their motions, he observed that they invariably entered at one side, and went out at the other. One object obtained by this improvement, was saving themselves the trouble of turning in

the nest and thus avoiding any derangement of its interior economy. But the chief object appeared to be, to facilitate their escape from the attacks of serpents, which harbour in the roofs of thatched houses, or crawl up along the walls, and not unfrequently devour both the mother and her young.

THE SAND MARTIN.

This bird frequents only such parts of the country as have precipitous sandy banks, either along rivers or elsewhere. It is not abundant, excepting in the Orkney Islands, and there it is said to be more so than any of its congeners. It visits Britain at the end of March, somewhat earlier than the other species to which it is similar in manners. The nest is made at the end of a hole mined horizontally to a considerable depth in the sand. The sand martin is the smallest of the genus that visits this country. Colour on the upper parts, dark-brown; under parts white.

THE CLIFF SWALLOW.

Mr Rennie quotes a passage respecting this bird, from Bonaparte's American Ornithology, which we shall give, together with Mr R's introductory description. It is strikingly characterised by having an even and not a forked tail, like its congeners. Instead of a white rump, also, like our window-swallow, it has an iron-brown one, and the same colour, but of a darker shade, under the chin, where our chimney-swallow is red. The upper part of the body, however, has the same glossy violet black, and the wings the same deep brown as the former. "This active little bird," says Bonaparte, "is, like its congeners, almost continually on the wing, and feeds on flies and other insects while performing its aerial evolutions. Its note is different from that of other swallows, and may be well imitated by rubbing a moistened cork around the neck of a bottle. The species arrive in the west, from the south, early in April, and immedi-

ately begin to construct their symmetrical nests, which are perfected by their united and industrious efforts. At the dawn of day they commence their labours by collecting the necessary mud from the borders of the rivers and ponds adjacent, and they persevere in their work until near mid-day, when they relinquish it for some hours, and amuse themselves by sporting in the air, pursuing insects, &c. As soon as the nest acquires the requisite firmness, it is completed, and the female begins to deposit her eggs,—four in number, which are white, spotted with dusky brown. The nests are extremely friable, and will readily crumble to pieces; they are assembled in communities. In unsettled countries, these birds select a sheltered situation, under a projecting ledge of rock; but in civilized districts, they have already evinced a predilection for the abodes of man, by building against the walls of houses, immediately under the eaves of the roof, though they have not in the least changed their style of architecture. A nest from the latter situation is now before me; it is hemispherical, five inches wide at its truncated place of attachment to the wall, from which it projects six inches, and consists exclusively of a mixture of sand and clay, lined on the inside with straw and dried grass, negligently disposed for the reception of the eggs. The whole external surface is roughened by the projection of the various little pellets of earth which compose the substance. The entrance is near the top, rounded, projecting, and turning downwards, so that the nest may be compared to a chemist's retort, flattened on the side applied to the wall, and with the principal part of the neck broken off. So great is the industry of these interesting little architects, that this massive and commodious structure is sometimes completed in the course of three days.*

THE ESCULENT SWALLOW.

This bird, locally termed the *salangane*, is found on the coast of China. Its nest is esteemed a great luxury by the eastern epicures. Various opinions are entertained as to the nature

* Architecture of Birds.

of the substance composing this nest, which will be found enumerated in the notes to Goldsmith. The following interesting description is given by Sir G. Staunton, in his account of Lord Macartney's embassy to China. "In the Cass," says he, "a small island near Sumatra, we found two caverns running horizontally into the side of the rock, and in these were a number of those birds' nests so much prized by the Chinese epicures. They seemed to be composed of fine filaments, cemented together by a transparent viscous matter, not unlike what is left by the foam of the sea upon stones alternately covered by the tide, or those gelatinous animal substances found floating on every coast. The nests adhere to each other and to the sides of the cavern, mostly in horizontal rows, without any break or interruption, and at different depths from fifty to five hundred feet. The birds that build these nests are small grey swallows, with bellies of a dirty white. They were flying about in considerable numbers, but were so small, and their flight was so quick, that they escaped the shot fired at them. The same sort of nests are said to be also found in deep caverns at the foot of the highest mountains in the middle of Java, at a distance from the sea; from which source it is thought that the birds derive no materials, either for their food, or the construction of their nests, as it does not appear probable they should fly in search of either over the intermediate mountains, which are very high, or against the boisterous winds prevailing thereabouts. They feed on insects, which they find hovering over stagnated pools between the mountains, and for the catching of which their wide opening beaks are particularly adapted. They prepare their nests from the best remnants of their food. Their greatest enemy is the kite, who often intercepts them in their passage to and from the caverns, which are generally surrounded with rocks of grey limestone or white marble. The colour and value of the nests depend on the quantity and quality of the insects caught, and perhaps also on the situation where they are built. Their value is chiefly ascertained by the uniform fineness and delicacy of their texture, those that are white and transparent being most esteemed, and fetching often in China their weight in silver.

"These nests are a considerable object of traffic among the Javanese, many of whom are employed in it from their infancy. The birds, after having spent nearly two months in preparing

their nests, lay each two eggs, which are hatched in about fifteen days. When the young birds become fledged it is thought the proper time to seize upon their nests, which is done regularly three times a-year, and is effected by means of ladders of bamboo and reeds, by which the people descend into the caverns; but when these are very deep, rope-ladders are preferred. This operation is attended with much danger, and several perish in the attempt. The inhabitants of the mountains generally employed in this business begin always by sacrificing a buffalo, which custom is observed by the Javanese on the eve of every extraordinary enterprise. They also pronounce some prayers, anoint themselves with sweet-scented oil, and smoke the entrance of the cavern with gumbenjamin. Near some of the caverns a tutelar goddess is worshipped, whose priest burns incense, and lays his projecting hands on every person preparing to descend. A flambeau is carefully prepared at the same time, with a gum which exudes from a tree growing in the vicinity, and which is not easily extinguished by fixed air or subterraneous vapours."

The subject of the migration of the swallow tribe forms an interesting inquiry. We are sufficiently acquainted with the fact, although, as yet we do not precisely know where they go during our winter. But there cannot be a doubt, that it is to some more southern clime, where the insect tribe abound, when those of our country are in a torpid sleep.

The preparations for their migration are marked by some interesting circumstances. After they have reared their second brood, which is generally about the middle of September, their whole time is devoted to training their young, for the arduous task of their ultimate long and fatiguing flight. On the approach of cold weather, they regularly assemble in multitudes from all quarters, in one general convention, on the roof of some high building or large tree, (the latter being their favourite place). While the congregation are there seated, one of them, who appears commander-in-chief, keeps on the wing, flying round in all directions; at last he darts upwards with great swiftness, uttering a sharp and loudly repeated call, which seems the word of command, for instantly the whole community are on the wing, and mounting upwards in a most beautiful spiral track, till they are lost in the blue ether. After remaining

out of sight for about a quarter of an hour, they return to the place where they were seated in dozens. They practice this manœuvre, twice or thrice in an evening, for a week or eight days, when at length they take their final departure for the season.

Mr Rae Wilson mentions in his *Travels in Egypt*, that the swallow migrates to Africa and Asia. "I had," says he, "the fullest proof in the immense bodies of these birds, which I perceived pushing their way in the direction of Egypt from Europe, during the month of November."

It is not at all improbable that swallows propagate, in the countries to which they migrate as well as here; being stimulated by the heat of these countries, and by abundance of food.

There are a few solitary instances of the swallow remaining in this country in a state of torpidity during the winter, but their general hybernation is quite inconsistent with all our experience. Prince Charles Lucian Bonaparte, in a letter to the secretary of the Linnean Society, dated from on board the *Delaware*, near Gibraltar, March 20, 1828, says,— "A few days ago, being five hundred miles from the coasts of Portugal, four hundred from those of Africa, we were agreeably surprised by the appearance of a few swallows. This, however extraordinary, might have been explained by an easterly gale, which might have cut off the swallows migrating from the Maine to Madeira, only two hundred miles distant from us; but what was my surprise in observing several small warblers hopping about the deck and rigging. These poor little strangers were soon caught and brought to me."

From the most authentic information which we have been enabled to collect, the swallow is migratory in all countries. It has been satisfactorily proved that they leave even the most extreme southern parts of Europe, as the kingdom of Naples, Sicily, the Morea, &c., and migrate to Africa and Asia.

Dr Richardson remarked that "in the fur countries, where the habitations of man are few and far between, the barn-swallow inhabits caves, particularly in the limestone rocks; and it frequents the out-houses of all the trading ports. When Fort Franklin was erected on the shores of the great Bear Lake, in the autumn of 1825, we found many of the nests in the ruins of a house that had been abandoned for more than ten years."

In that far northern latitude they arrive about the 15th of May, and take their departure early in August. They were noticed in latitude sixty-seven and a half degrees, the most northerly post in America.

THE EUROPEAN GOATSUCKER.

This bird visits Britain between May and June, and departs generally in September. It goes in search of its prey, which consists of insects, after sunset, on which account it has been termed the *night swallow*. The name of *fern owl* is also applied to it, from its frequenting ferny slopes. "The country people," says Mr White in his *Miscellaneous Observations*, "have a notion that the fern-owl, or churn-owl, or eve-jar, which they also call a puckeridge, is very injurious to weaning calves, by inflicting as it strikes at them, a fatal distemper, known to cow-leeches by the name of puckeridge. Thus does this harmless, ill-fated bird, fall under a double imputation, which it by no means deserves, in Italy, of sucking the teats of goats, whence it is called *caprimulgus*, (goatsucker,) and with us, of communicating a deadly disorder to cattle. The least observation and attention would convince men that these birds neither injure the goat-herd nor the grazier, but are perfectly harmless, and subsist alone, being night-birds, on night insects. Those that we have opened, have always had their craws stuffed with large night-moths and their eggs, and pieces of chaffers, nor does it any wise appear how they can, weak and unarmed as they seem, inflict any harm upon kine, unless they possess the powers of animal magnetism, and can affect them by fluttering over them. A fern-owl, this evening, (August 27,) showed off in a very unusual and entertaining manner, by hawking round the circumference of my great spreading oak, for twenty times following, keeping most close to the grass, but occasionally glancing up amongst the boughs of the tree. This amusing bird was then in pursuit of a brood of some particular *phalæna* belonging to the oak, and exhibited on the occasion a command of wing superior, I think, to the swallow itself. When a person approaches the haunts of fern-owls in an evening, they continue flying round

the head of the obtruder, and by striking their wings together above their backs, in the manner that pigeons called twisters are known to do, make a smart snap. Perhaps at that time they are jealous for their young, and their noise and jesture are intended by way of menace. Fern-owls have attachment to oaks, no doubt on account of food. These peculiar birds can only be watched and observed for two hours in the twenty-four, and then in a dubious twilight, an hour after sunset, and an hour before sunrise."—The Goatsucker chatters as it flies, and utters a jarring note when perched. General colour, ash-grey, spotted and streaked with yellowish-brown.

THE HUMMING BIRD AND ITS VARIETIES.

LATE researches in Natural History have brought to light many new species of these gorgeous little birds, whose geographical range is chiefly confined to the tropical regions of South America.

It is now satisfactorily ascertained that all the tribe are insectivorous, and do not subsist entirely upon the nectar of flowers as has been long asserted by naturalists. The manner in which some of them procure their prey as noticed by Mr Bullock is curious. The following is his account.—“The house I resided in at Xalappa for several weeks, on my return to Vera Cruz, was only one story high, enclosing, like most of the Spanish houses, a small garden in the centre, the roof projecting six or seven feet from the walls, covering a walk all round, and leaving a small space only between the tiles and the trees which grew in the centre. From the edges of these tiles to the branches of the trees in the garden, the spiders had spread their innumerable webs so closely and compactly, that they resembled a net. I have frequently watched, with much amusement, the cautious peregrinations of the humming-bird, who, advancing beneath the web, entered the various labyrinths and cells in search of entangled flies; but, as the larger spiders did not tamely surrender their booty, the invader was often compelled to retreat. Being within a few feet, I could observe all their evolutions with great precision. The active little bird generally passed once or twice round the court, as if to reconnoitre his ground, and commenced his attack by going carefully under the nests of the wily insect, and seizing by surprise the smallest entangled flies, or those that were most feeble. In ascending the angular

traps of the spider, great care and skill was required ; sometimes he had scarcely room for his little wings to perform their office, and the least deviation would have entangled him in the complex machinery of the web, and involved him in ruin. It was only the works of the smallest spider that he durst attack, as the largest rose to the defence of their citadels, when the besieger would shoot off like a sunbeam, and could only be traced by the luminous glow of his refulgent colours. The bird generally spent about ten minutes in this predatory excursion ; and then alighted on the branch of an *ovocata*, to rest and refresh himself."

THE RUBY-THROATED HUMMING-BIRD.

This beautiful little bird is a native of North America, and is migratory, making its appearance in Georgia and the neighbouring States, about the 23d of March, being two weeks earlier than it does in the county of Zurke, sixty miles higher up the country, towards the interior ; and at least five weeks sooner than it reaches this part of Pennsylvania. As it passes on to the northward as far as the interior of Canada, where it is seen in great numbers, the wonder is created how so feebly constructed and delicate a little creature can make its way over such extensive regions of lakes and forests, amongst so many enemies, all its superiors in strength and magnitude. But its very minuteness, the rapidity of its flight, which almost eludes the eye, and that admirable instinct, reason, or whatever else it may be called, and its daring courage, are its guides and protectors. In these we may also perceive the reason, why an all-wise providence, has made this little hero an exception to a rule which prevails almost universally through nature, viz. that the smallest species of a tribe are the most prolific. The eagle lays one, sometimes two eggs ; the crow, five ; the titmouse, seven or eight ; the small European wren, fifteen ; the humming-bird two : and yet this latter is greatly more abundant in America than the wren in Europe.

In Pennsylvania the humming-bird usually arrives about the 25th of April ; and about the 10th of May begins to build its

nest. This is generally fixed on the upper side of a horizontal branch, not among the twigs, but on the body of the branch itself. Yet I have known instances where it was attached by the side to an old moss-grown trunk ; and others where it was fastened on a strong rank stalk, or weed in the garden ; but these cases are rare. In the woods it very often chooses a white oak sapling to build on, and in the orchard or garden, selects a pear tree for that purpose. The branch is seldom more than ten feet from the ground. The nest is about an inch in diameter, and as much in depth. A very complete one is now lying before me, and the materials of which it is composed, are as follows :— The outward coat is formed of small pieces of a species of bluish grey lichen, that vegetates on old trees and fences, thickly glued on with the saliva of the bird, giving firmness and consistency to the whole, as well as keeping out moisture.

Within this are thick, matted layers of the fine wings of certain flying seeds, closely laid together ; and lastly, the downy substance from the great mullein, and from the stalks of the common fern, lines the whole. The base of the nest is continued round the stem of the branch, to which it closely adheres ; and when viewed from below, appears a mere mossy knot, or accidental protuberance. The eggs are two, pure white, and of equal thickness at both ends. On a person's approaching their nest, the little proprietors dart around with a humming noise, passing frequently within a few inches of one's head ; and, should the young be newly hatched, the female will resume her place on the nest even while you stand within a yard or two of the spot. Wilson cannot state the precise period of their incubation ; but supposes, from having found nests with their eggs so late as the 12th of July, that they occasionally raise two broods.

"The humming-bird," continues Wilson, "is extremely fond of tubular flowers, and I have often stopped with pleasure, to observe his manœuvres among the blossoms of the trumpet flower. When arrived before a thicket of these that are full blown, he poises or suspends himself on wing, for the space of two or three seconds, so steadily that his wings become invisible, or only like a mist ; and you can plainly distinguish the pupil of his eye looking round with great quickness and circumspection ; the glossy golden green of his back, and the fire of his throat, dazzling in the sun, form altogether a most interesting appear-

ance. When he alights, which is frequently, he always prefers the small dead twigs of a tree, or bush, where he dresses and arranges his plumage with great dexterity. His only note is a single chirp, not louder than that of a small cricket or grasshopper, generally uttered while passing from flower to flower, or while engaged in fights with his fellows;—for, when two males meet at the same bush, or flower, a battle instantly takes place; and the combatants ascend in the air, chirping, darting, and circling around each other, till the eye is no longer able to follow them. The conqueror, however, generally returns to the place to reap the fruits of his victory. I have seen him attack, and for a few moments tease the king-bird; and have also seen him, in his turn, assaulted by the humble-bee, which he soon put to flight. He is one of those few birds that are universally beloved; and amidst the sweet dewy serenity of a summer's morning, his appearance among the arbours of honey-suckles and beds of flowers is truly interesting.

When morning dawns, and the blest sun again
Lifts his red glories from the eastern main,
Then through our woodbines, wet with glittering dews,
The flower-fed humming bird his round pursues;
Sips with inserted tube, the honey'd blooms,
And chirps his gratitude as round he roams:
While richest roses, though in crimson drest,
Shrink from the splendour of his gorgeous breast;
What heav'nly tints in mingling radiance fly.
Each rapid movement gives a different dye;
Like scales of burnish'd gold that dazzling show,
Now sink to shade—now like a furnace glow."

Many have been the attempts to raise this bird from the nest, but although in some instances these attempts have been so far successful, the birds thus raised seldom survive for any length of time.

"Mr Coffey, of Fairfax County, Virginia," says Wilson, "a gentleman who has paid great attention to the manners and peculiarities of our native birds, told me, that he had raised, and kept two, for some months, in a cage, supplying them with honey dissolved in water, on which they readily fed. As the sweetness of the liquid frequently brought small flies and gnats about the cage and cup, the birds amused themselves by snapping at them on the wing, and swallowing them with eagerness,

so that these insects formed no inconsiderable part of their food. Mr Charles Wilson Peale, proprietor of the museum, tells me, that he had two young humming-birds, which he raised from the nest. They used to fly about the room ; and would frequently perch on Mrs Peale's shoulder to be fed. When the sun shone strongly into the chamber, he has observed them darting after the motes that floated in the light, as fly-catchers would after flies. In the summer of 1803, a nest of young humming-birds was brought to me, that were nearly fit to fly. One of them actually flew out by the window the same evening, and, falling against a wall, was killed. The other refused food, and the next morning I could but just perceive that it had life. A lady in the house undertook to be its nurse, placed it in her bosom, and, as it began to revive, dissolved a little sugar in her mouth, into which she thrust its bill, and it sucked with great avidity. In this manner it was brought up until fit for the cage. I kept it upwards of three months, supplied it with loaf sugar dissolved in water, which it preferred to honey and water, gave it fresh flowers every morning sprinkled with the liquid, and surrounded the space in which I kept it with gauze, that it might not injure itself. It appeared gay, active, and full of spirits, hovering from flower to flower as if in its native wilds, and always expressed by its motions and chirping, great pleasure at seeing fresh flowers introduced to its cage. Numbers of people visited it from curiosity : and I took every precaution to preserve it, if possible, through the winter. Unfortunately, however, by some means it got at large, and flying about the room, so injured itself that it soon after died."

There is only one instance on record, of a humming-bird reaching this country alive, and this was of the species called the Mango humming-bird, and is mentioned by that excellent ornithologist Latham,—“A young gentleman,” says he, “a few days before he sailed from Jamaica for England, met with a female humming-bird sitting on the nest and eggs, and cutting off the twig, he brought altogether on board. The bird became sufficiently tame to suffer herself to be fed on honey and water during the passage, and hatched two young ones. The mother, however, did not long survive, but the young were brought to England, and continued for sometime in the possession of Lady Hammond. The little creatures readily took honey from the

lips of Lady Hammond, and though the one did not live long, the other survived for at least two months from the time of their arrival."

The courage and jealousy manifested by the small species of humming-bird called the Mexican Star, is truly wonderful, and greatly exceeds that of the ruby-throated humming-bird. "When attending their young," says he, "they attack any bird indiscriminately that approaches the nest. Their motions when under the influence of anger or fear, are very violent, and their flights rapid as an arrow. The eye cannot follow them, but the shrill piercing shriek which they utter on the wing may be heard when the bird is invisible, and often leads to their destruction, by preparing one for their approach. They attack the eyes of the larger birds, and their sharp needle-like bill is a truly formidable weapon in this kind of warfare. Nothing can exceed their fierceness when one of their own species invades their territory during the breeding season; under the influence of jealousy they become perfect furies; their throats swell; their crests, tails, and wings expand; they fight in the air, uttering a shrill noise, till one falls exhausted to the ground." The following observations are from Loudon's Magazine:—"White, in his Natural History of Selborne, says, 'In the season of nidification the wildest birds are comparatively tame:' this observation applies to the humming-bird. I remember a pair of these beautiful little creatures busily building a nest in the branch of an orange tree, which was close to the outer side of the open piazza of a house in Spanish Town, Jamaica; in this apartment, situated on the north side of the house, the family breakfasted and lunched. I spent three days there; and while making my meals, had at least an equal treat, in seeing these smallest of the feathered tribes gaily and actively employed in their building process. I have now in my possession the nest of a bee-humming-bird, which I removed from the end of a branch of a mango-tree,* which was not a foot above my head, and close to the door of a dwelling-house. I cannot quit this article without speaking of the delight that was afforded me, in Jamaica, by seeing humming-birds feeding on honey in the florets of the great aloe (*Agave Americana*.) On the side of a hill upon Sutton's estate (the property of Henry Dawkins, Esq.)

* *Mangifera Indica*.

were a considerable number of aloe plants, of which about a dozen were in full blossom. They were spread over a space of about twenty yards square. The spikes, bearing bunches of flowers in a thyrus, were from twelve to fifteen feet high; on each spike were many hundred of flowers of a bright yellow colour, each floret of a tubular shape, and containing a good sized drop of honey. Such an assemblage of floral splendour was in itself most magnificent and striking; but it may be imagined how much the interest caused by this beautiful exhibition was increased by vast numbers of humming-birds of various species, fluttering at the opening of the flowers, and dipping their bills first into one floret, and then into another, the sun, as usual, shining bright upon their bright and varied and beautiful plumage. The long-tailed or Paradise humming-bird was particularly striking, its long feathers waving as it darted from one flower to another."

Waterton thus beautifully describes the humming-bird. "The humming-bird, though least in size, yet, from its glittering mantle, is entitled to the first place in the list of the birds of the new world. It may be truly called the bird of Paradise; and, had it existed in the old world, it would have claimed the title, instead of the bird which has now the honour to bear it. See it darting through the air almost as quick as thought! Now, it is within a yard of your face! in an instant gone! now, it flutters from flower to flower, to sip the silver dew: it is now a ruby, now a topaz, now an emerald, now all burnished gold! It would be arrogant to describe this winged gem of nature, after Buffon's elegant description of it. Cayenne and Demerara produce the same humming-birds. Perhaps you would wish to know something of their haunts. Chiefly in the months of July and August, the tree called *bois immortel*, very common in Demerara, bears abundance of red blossoms, which stay on the tree for some weeks; then it is that most of the different species of humming-birds are very plentiful. The wild sage (*salvia splendens*,) is also their favourite shrub, and they buzz like bees round the blossom of the Wallabar tree. Indeed, there is scarce a flower in the interior or on the sea-coast, but what receives frequent visits from one or other of the species. On entering the forests on the rising land in the interior, the blue and green, the smallest brown—no bigger than the humble bee—with two

long feathers in the tail,—and the little forked-tail purple throated humming-birds glitter before you in ever-changing attitudes. One species alone, never shows his beauty to the sun; and were it not for his lovely shining colours, you might almost be tempted to class him with the goat-sucker, on account of his habits. He is the largest of all the humming-birds, and is all red and changing gold-green, except the head, which is black. He has two long feathers in the tail, which cross each other; and these have gained him the name of Karabimite, or Ara-humming-bird, from the Indians. You never find him on the sea-coast, or where the river is salt, or in the heart of the forest, unless fresh water be there. He keeps close by the side of the wooded fresh water rivers, and dark and lonely creeks. He leaves his retreat before sunrise, to feed on the insects over the water; he returns to it as soon as the sun's rays cause a glare of light, is sedentary all day long, and comes out again for a short time after sunset. He builds his nest on a twig over the water, in some unfrequented creek; it looks like tanned cow-leather. As you advance towards the mountains of Demerara, other species of humming-birds present themselves before you. It seems to be an erroneous opinion, that the humming-bird lives entirely on honey-dew. Almost every flower of the tropical climate contains insects of one kind or another; now the humming-bird is most busy about the flowers an hour or two after sunrise, and after a shower of rain; and it is just at this time that the insects come out to the edge of the flower, in order that the sun's rays may dry the nocturnal dew and rain which they have received. On opening the stomach of the humming-birds, dead insects are almost always found there."

BIRDS OF THE CRANE KIND.

HAVING said more or less about almost every bird peculiar to *terra firma*, we must now betake ourselves to the water. Some of our readers may start at this announcement, from a supposition that we mean to commit suicide, while the truth is, we are speaking figuratively, and intend to live as long as we can, for their benefit and our own. Our anecdotes of song-birds and their congeners were few but select. We could have given twice the number, had we chosen to mingle falsehood with truth, or trifles with things important. As a certain author says, "We eschewed the one, and steadily held by the other, whereat some may laugh, and welcome, seeing they do so to their own hurt, and not our dishonour."—We must now betake ourselves to the water,—that is, as our title shows, give an account of birds of the crane kind, which hold a middle place between those that belong exclusively to the land, and those that swim. The present class frequent waters in search of food, and have received the appropriate name of *waders*.

THE CRANE.

Of this bird there are several varieties, such as the crowned crane, the gigantic crane, the hooping crane, and others. They are alike in habits, and differ but slightly in appearance.

Cranes fly high, and arrange themselves in the form of a triangle, the better to cleave the air. When the wind freshens, and threatens to break their ranks, they collect their force into a circle, and adopt the same arrangement when the eagle

attacks them. They always fly during the night, on which occasions the leader frequently calls, in order to rally his forces, and point out the track; and the cry is repeated by the flock, each answering to give notice that it follows and keeps its rank.

Part loosely wing the region: part more wise,
In common, rang'd in figure, wedge their way,
Intelligent of seasons; and set forth
Their airy caravan, high over seas
Flying, and over lands with mutual wing,
Easing their flight,—so steers the prudent crane,
Her annual voyage, borne on winds: the air
Floats as they pass, fann'd with unnumber'd plumes.

In the menagerie of the *Jardin des Plantes*, at Paris, was a crane, which Mons. Valentin had brought from Senegal. The bird was attended by that merchant, during the voyage, with the most assiduous care; but upon landing in France, it was sold, or given to the Museum of Natural History. Several months after its introduction, Valentin arriving at Paris, went to the menagerie, and walked up to the cage in which the bird was confined. The crane instantly recognized him; and when Valentin went into its cage, it lavished upon him every mark of affectionate attachment.

A gentleman residing in England, had for some years been possessed of two brown cranes; one of them at length died, and the survivor became disconsolate. He was apparently following his companion, when his master introduced a large mirror into the aviary. The bird no sooner beheld his reflected image, than he fancied she for whom he mourned had returned to him; he placed himself close to the mirror, plumed his feathers, and showed every sign of happiness. The scheme answered completely, the crane recovered his health and spirits, passed almost all his time before the looking-glass, and lived many years after, at length dying from an accidental injury.

THE WHITE STORK.

Bellonius informs us, that storks visit Egypt in such abun-

dance, that the fields and meadows are white with them. Yet the Egyptians are not displeased with the sight ; as frogs are generated in such numbers there, that did not the storks devour them, they would over-run every thing. Besides, they also catch and eat serpents. Between Belbā and Gaza, the fields of Palestine are often rendered desert, on account of the abundance of mice and rats ; and, were they not destroyed, the inhabitants would have no harvest.

The general disposition of the stork is mild and placid. It is an animal easily tamed ; and may be trained to reside in gardens, which it will clear of insects and reptiles. It has a grave air, and a mournful visage ; yet, when roused by example, it shows a certain degree of gayety, for it joins in the frolics of children, hopping about and playing with them : “ I saw in a garden,” says Dr Harmann, “ where the children were playing at hide and seek, a tame stork join the party, run its turn when touched ; and distinguish the child whose turn it was to pursue the rest, so well, as, along with the others to be on its guard.” The following lines well describe the ordinary habits of this bird before migration.

“ Where the Rhine loses its majestic force
In Belgian plains,—won from the raging deep
By diligence amazing, and the strong
Unconquerable hand of Liberty,—
The stork assembly meets ; for many a day,
Consulting deep and various, ere they take
Their arduous voyage through the liquid sky.
And now their route design’d, their leaders chose,
Their tribes adjusted, clean’d their vigorous wing ;
And many a circle, many a short essay,
Wheel’d round and round, in congregations full
The figur’d flight ascends ; and, riding high
The aerial billows, mixes with the clouds.”

At Smyrna, storks have become very familiar, and build their nests on the tops of houses, and other elevated situations. The inhabitants take particular delight in amusing themselves at the expense of the life of the poor hen birds. This is by taking away some of the stork’s eggs from their nests, and replacing them by those of the common domestic fowl. When the young are hatched, the sagacious male bird discovers the difference of

these from their own brood, and set up a hideous screaming, which excites the attention of the neighbouring storks, which fly to his nest. Seeing the cause of their neighbour's uneasiness, they simultaneously commence pecking the hen, and soon deprive her of life, supposing these spurious young ones to be the produce of her conjugal infidelity. The male bird in the meantime appears melancholy, and bemoans her loss, though he seems to conceive she justly merited her fate, for bringing disgrace upon her family.

From the following remarkable fact, it seems evident that storks are capable of communicating their ideas to each other. A tame stork had taken up his abode for some years in the college yard at Zabingen. Upon a neighbouring house was a nest, in which the storks that annually resorted to the place used to hatch their eggs. One day in autumn, a young collegian fired a shot at this nest. Probably the stork that was sitting on the nest was wounded by the shot, for after that time he did not fly out of it for several weeks. However, at the usual time, he took his departure with the rest of the storks. In the ensuing spring, a stork appeared upon the roof of the college, who by clapping his wings, seemed to invite the tame stork to come to him. The latter, however, could not accept the invitation, as his wings were clipped. After some days, the wild stork came down himself into the yard. The tame one went to meet him, clapping his wings as if to bid him welcome, but was immediately attacked by the other with great fury. The persons present protected him indeed; but the wild stork often afterwards repeated his attempts upon him; and incommoded him throughout the whole of the summer. The next spring, instead of a single stork, four of them came at once into the yard, and attacked the tame one. As he was unable of himself to contend with such a number of adversaries, the cocks, hens, geese, ducks, in short, all the poultry in the yard came to his assistance, and rescued him from his enemies. The people of the house now paid greater attention than before to this stork, and prevented his being further molested during that year. But in the beginning of the third spring, upwards of twenty storks rushed at once into the yard with the utmost fury, and killed the tame stork before either man or beast could afford him assistance. Thus the animosity of these twenty storks seemed to originate from that of the four which had made their

appearance the preceding year, and they seemed to have been instigated by the one that first attacked the tame stork. It cannot indeed be positively asserted, that it was the wounded stork that made the first attack upon the tame one in the ensuing year, but so much at least appears certain, that the enemies who attacked him in three successive years, must have communicated their hostile designs to each other.

The above is not the only instance of storks resenting injuries, as will be seen by the following anecdote, which is much of a piece with the foregoing.

A farmer near Hamburgh, having caught a wild stork, brought it to his farm yard, where he had a tame one, to which he expected it would form an excellent companion, but the tame one being jealous of a rival, fell upon the wild one, and beat him so unmercifully, that he was compelled to evacuate the premises. About four months afterwards, however, he returned to the poultry yard, accompanied by three other storks, who alighted and commenced a furious assault upon the tame stork, and killed him,

THE HERON.

Mr Rennie says that the heronries recorded to be existing at present in this country, are at Penhurst Place, Kent; at Hutton, the seat of Mr Bethel, near Beverly, in Yorkshire; at Pixton, the seat of Lord Caernarvon; in Gobay Park, on the road to Penrith, near a rocky pass called Yew Crag, on the north side of the romantic lake of Ulswater; Cressie Hall, six miles from Spalding, in Lincolnshire; at Downington-in-Holland, in the same county; at Brackley woods near Bristol; at Brownsea Island, near Poole, in Dorsetshire; and at Windsor, and a small one in the parish of Craigie, near Kilmar-nock, in Ayrshire.

"I went lately to see a fine heronry at Sir Henry Fletcher's park, Walton-on-Thames," says Mr Jesse. "The nests are built on the top of some of the finest fir trees in the kingdom, and appear somewhat larger than those of the rooks. These birds must go an amazing distance to provide for their young as I

have been assured that the bones of sea-fish have been found under their nests.

“ A young bird from this heronry, having fallen out of the nest, was taken away in the evening by a gentleman, who carried it to his house at some miles distance, and turned it into a walled garden that night, the next morning one of the old birds was seen to feed it, and continued to do so till the young one made its escape. This bird must have gone over a very considerable space of ground in search of the young heron.

“ A large assembly of herons takes place at certain times of the year in Richmond Park, where I have counted from fifty to sixty at a time. Sometimes they may be seen on the tops of trees, and at others on the ground at a distance from the ponds, appearing perfectly motionless till they are disturbed. This assemblage is very curious. The nearest heronry from Richmond Park is the one near Walton-on-Thames, and the other in Windsor Great Park, both of which would scarcely furnish the number above mentioned. There seems to be no reason why they should congregate and remain for so long a time in the listless manner in which I have seen them; nor can one give a probable reason, why the birds from two heronries should meet at the same time in a place so far distant from their usual haunts. It is seldom that one sees more than two or three herons together in the same place, and this only when they are watching their prey.

“ Belon mentions it as one of the extraordinary feats performed by the divine king, Francis the First, that he formed two artificial heronries at Fontainebleau,—‘the very elements themselves,’ says he, ‘obeying the commands of this divine king (whom God absolve!) for to force nature is a work partaking of divinity.’ In order to enhance the merits of these French heronries, he undertakes to assert, that they were unknown to the ancients, because they are not mentioned in any of their writings; and for the same reason he concludes there are none in Britain. Before Beloe’s time, on the contrary, and before the “divine” constructor of heronries in France was born, there were express laws enacted in England for the protection of herons, it being a fine of ten shillings to take the young out of the nest, and six shillings and eight-pence for a person without his own grounds, killing a heron, except by

hawking, or by the long-bow ; while in subsequent enactments, the latter penalty was increased to twenty shillings, or three months imprisonment. At present, however, in consequence of the discontinuance of hawking, little attention is paid to the protection of heronries, though, I believe, none of the old statutes respecting them have been repealed. Not to know a hawk from a *heronshaw*, (the former name of the heron) was an old adage, which arose when the diversion of heron-hawking was in high fashion : it has since been corrupted into the absurd vulgar proverb, "not to know a hawk from a hand-saw."

"The times at which the heron resorts to the water to fish, are those at which the fish come to the shores and shallows to feed upon insects, and when, as they are themselves plashing and dimpling the water, they are the least apt to be disturbed by the motions of the heron. The bird alights in a quiet way, then wades into the water to its depth, folds its long neck partially over its back, and forward again, and with watchful eye, awaits till a fish comes within the range of its beak. Instantaneously it darts, and the prey is secured. That it should fish only in the absence of the sun is also a wonderful instinct. Every one who is an angler, or is otherwise acquainted with the habits of fish in their native element, knows how acute their vision is, and how much they dislike shadows in motion, or even at rest projected from the bank. It is not necessary that the shadow should be produced by the bright sun ; full daylight will do it ; and we have seen a successful fly-fishing instantly suspended, and kept so for a considerable time, by the accidental passage of a person along the opposite bank of the stream ; nay, we once had our sport interrupted by a cow coming to drink ; so alarmed are fish, especially the trout and salmon tribe, at the motion of small shadows upon the water. There is one instance in which we have observed herons feeding indiscriminately in sun and shade ; and that is, when a river is flooded to a great extent, and the flood has passed off, leaving the fish in small pools over the meadows. How the herons find out these occasions it is difficult to say ; but we have seen several pairs come after a flood to a river which they never visited upon any other occasion, and within many miles of which a heronry, or even the nest of a single pair, was never observed."*

* British Naturalist, page 106.

Mr J. C. Hurst, in the Magazine of Natural History, gives the following interesting fact. "A heron was run down and captured by a boy in Bexley marshes, which contained in his stomach a *very large-sized mature*, male water-rat. It had been lately swallowed, occupying even to distension—with portions of partially digested fish—the ventriculus of the heron. The only injury apparent to the animal was, a puncture made by the beak of the bird in the frontal part of the skull, by which life was destroyed. On referring to the only works I have in my possession on ornithology, I find no mention of so large a creature as the rat constituting the food of the *Ardea* genus. I think it appears evident (as the bird was in good condition, and other food in the stomach), that, although the winter has been severe, yet necessity did not enforce such means to satisfy its hunger. The size of the oesophagus would also elicit a contradiction to its capability of such distension, if the proofs were not positive. No evident cause of its easy capture existed, but the probable one of repletion."*

The power of the heron was lately manifested in a remarkable manner. A gentleman belonging to the parish of Bothwell, being on a shooting excursion, accompanied by a small spaniel, observed a heron wading a little above a waterfall. He fired—wounded it—and sent his dog into the stream to bring it to land. As soon as the dog had come within its reach, the heron drew back its head, and then with all its force, struck him in the ribs with its bill. The gentleman again fired, and killed the heron; but it had well revenged itself:—the dog and it floated dead together, down the foaming waterfall.

When the heron has had nearly enough of food, (for there is no record of its having had quite enough,) it will play with the unlucky fish, which it captures, as a cat does with a mouse. It is very provoking when one has neither dog, boat, nor gun, to see the grey rascal at this amusement among the reeds by the lake side, where the marsh would sink under our weight. Before him lies, perhaps a fine trout, at which he looks with dreamy delight, notwithstanding the incredible number already buried in that paunch of his, and when it makes a vain attempt to regain the water, of which it has yet a tempting feel, but

* September, 1830.

cannot taste, he darts his ugly bill into its side, and ends of course, by swallowing it right down. How provoking to a hungry shepherd among the hills, to whose wife and family and self it would have made a plentiful, at least a most acceptable dinner.

Instances are on record of herons and rooks building their nests contiguous to each other, and living on better terms, upon the whole, than many neighbours of whom more might be expected. "There were," says Dr Heysham, of Carlisle, "two groves adjoining the park :* one of which, for many years, had been resorted to by a number of herons, which there built and bred ; the other was one of the largest rookeries in the country. The two tribes lived together for a long time without any disputes. At length the trees occupied by the herons, consisting of some very fine old oaks, were cut down in the spring of 1775, and the young had perished by the fall of the timber. The parent birds immediately set about preparing new habitations in order to breed again ; but as the trees in the neighbourhood of their old nests were only of a late growth, and not sufficiently high to secure them from the depredations of boys, they determined to effect a settlement in the rookery. The rooks made an obstinate resistance ; but, after a very violent contest, in the course of which many of the rooks, and some of their antagonists, lost their lives, the herons at last succeeded in their attempt, built their nests, and brought out their young.

"The next season the same contest took place, which terminated like the former, by the victory of the herons. Since that time peace seems to have been agreed upon between them ; the rooks have relinquished possession of that part of the grove which the herons occupy ; the herons confine themselves to those trees they first seized upon, and the two species live together in as much harmony as they did before their quarrel."

The picture which Wilson has drawn of the breeding-places of some of the American herons is worth quoting. The great heron, for example, builds a spacious platform of sticks, covered with small twigs, on the top of a tall cedar, a community of ten or fifteen pairs usually building in company. 'Many of their breeding-places,' says Wilson, 'occur in both Carolinas, chiefly

* At Dallam Tower, in Westmoreland.

in the vicinity of the sea. In the lower parts of New Jersey they have also their favourite places for building and rearing their young. These are generally in the gloomy solitudes of the tallest cedar swamps, where, if unmolested, they continue annually to breed for many years. These swamps are from half a mile to a mile in breadth, and sometimes five or six in length, and appear as if they occupied the former channel of some choked-up river, stream, lake, or arm of the sea. The appearance they present to a stranger is singular : a front of tall and perfectly straight trunks, rising to the height of fifty or sixty feet without a limb, and crowded in every direction, their tops so closely woven together as to shut out the day, spreading the gloom of a perpetual twilight below. On a nearer approach they are found to rise out of the water, which, from the impregnation of the fallen leaves and roots of the cedars, is of the colour of brandy. Amidst this bottom of congregated springs, the ruins of the former forest lie piled in every state of confusion. The roots, prostrate logs, and in many places the water, are covered with green mantling moss ; while an undergrowth of laurel, fifteen or twenty feet high, intersects every opening so completely as to render a passage through laborious and harassing beyond description : at every step you either sink to the knees, clamber over fallen timber, squeeze yourself through between the stubborn laurels, or plunge to the middle in ponds made by the uprooting of large trees, and which the moss concealed from observation. In calm weather the silence of death reigns in these dreary regions ; a few interrupted rays of light shoot across the gloom ; and, unless for the occasional hollow screams of the herons, and the melancholy chirping of one or two species of small birds, all is silence, solitude, and desolation. When a breeze rises, at first it sighs mournfully through the tops ; but, as the gale increases, the tall, mast-like cedars wave like fishing-poles, and rubbing against each other, produce a variety of singular noises, that with the help of a little imagination, resemble shrieks, groans, or the growling of beasts of prey.'

" Wilson gives a similarly interesting account of the breeding-places of the night heron or Qua bird, which has been occasionally seen in Britain as a straggler. 'The night heron,' he tells us 'arrives in Pennsylvania early in April, and immedi-

ately takes possession of his former breeding-place, which is usually the most solitary and deeply-shaded part of a cedar swamp. Groves of swamp oak, in retired and inundated places, are also sometimes chosen; and the males not unfrequently select tall woods on the banks of a river to roost in during the day. These last regularly direct their course, about the beginning of evening twilight, towards the marshes, uttering in a hoarse and hollow tone the sound *qua*. At this hour also all the nurseries in the swamps are emptied of their inhabitants, who disperse about the marshes, and along the ditches and river shore, in quest of food. Some of these breeding-places have been occupied, every spring and summer for time immemorial, by from eighty to one hundred pair of *qua* birds. In places where the cedars have been cut down for sale, the birds have merely removed to another quarter of the swamp; but when personally attacked, long teased, and plundered, they have been known to remove from an ancient breeding-place, in a body, no one knew where. Such was the case with one on the Delaware, near Thomson's Point, ten or twelve miles below Philadelphia; which, having been repeatedly attacked and plundered by a body of crows, after many severe encounters, the herons finally abandoned the place. Several of these breeding-places occur among the red cedars on the sea-beach of Cape May, intermixed with those of the little white heron, green bittern, and blue heron. The nests are built entirely of sticks, in considerable quantities, with frequently three or four nests on the same tree. The eggs are generally four in number, measuring two inches and a quarter in length, by one and three quarters in thickness, and of a very pale light blue colour. The ground or marsh below is bespattered with their excrements, lying all around like white-wash, with feathers, broken egg-shells, old nests, and frequently small fish, which they have dropped by accident and neglected to pick up. On entering the swamp in the neighbourhood of one of these breeding-places, the noise of the old and the young would almost induce one to suppose that two or three hundred Indians were choking or throttling each other. The instant an intruder is discovered, the whole rise in the air in silence, and remove to the tops of the trees in another part of the woods; while parties of from eight to ten make occasional circuits over the spot to see what is going on. When the young are able,

they climb to the highest part of the trees ; but knowing their inability, do not attempt to fly. Though it is probable that these nocturnal birds do not see well during the day, yet their faculty of hearing must be exquisite, as it is almost impossible, with all the precautions one can use, to penetrate near their residence without being discovered. Several species of hawks hover around, making an occasional swoop among the young ; and the bald eagle himself has been seen reconnoitering near the spot, probably with the same design.'

" We shall only take notice of one other species of these social birds, the little white heron (*Ardea candidissima*), which, during summer, is particularly fond of salt marshes, where its white plumage renders it very conspicuous, either while wading or when on the wing. ' On the 19th of May,' says Wilson, ' I visited an extensive breeding-place of the little white heron, among the red cedars of Sommers's beach, on the coast of Cape May. The situation was very sequestered, bounded on the land side by a fresh-water marsh or pond, and sheltered from the Atlantic by ranges of sand-hills. The cedars, though not high, were so closely crowded together as to render it difficult to penetrate through them. Some trees contained three, others four nests, built wholly of sticks. The birds rose in vast numbers, but without clamour, alighting on the tops of the trees around, and watching the result in silent anxiety. Among them were numbers of the night heron, and two or three of the purple-headed (*N. cærulea*). Great quantities of egg-shells lay scattered under the trees, occasioned by the depredations of the crows, who were continually hovering about the place.' " *

The following interesting account of heron-hunting with falcons, is from the Magazine of Natural History, and though it might have been more appropriately introduced, perhaps, when we were speaking of birds of prey, it is too good, we think, to be omitted, and it incidentally illustrates the character of the species under consideration.

" In June, 1825," says the writer, " happening to be in Norfolk, I became an eye-witness to that most ancient and now very rare sport of falconry ; and I now relate what I actually saw, and which was to me most novel and entertaining. The place

* Wilson, apud Rennie.

fixed upon for the sport was in the intermediate country between the fens and the heronry, and in the afternoon of the day, with the wind blowing towards the heronry. There were four couple of casts of the *female* Peregrine falcon carried by a man to the ground, upon an oblong kind of frame padded with leather, on which the falcons perched, and were fastened to the perch by a thong of leather. Each bird had a small bell on one leg, and a leather hood, with an oblong piece of scarlet cloth stitched into it over each eye, surmounted by a plume of various-coloured feathers on the top of the hood. The man walked in the centre of the frame, with a strap from each side over each shoulder; and when he arrived at the spot fixed upon for the sport, he set down the frame upon its legs, and took off all the falcons, and tethered them to the ground in a convenient shady place. There were four men who had the immediate care of the falcons (seemingly Dutch or Germans,) each having a bag, somewhat like a woman's pocket, tied to his waist, containing a live pigeon, called a lure, to which was fastened a long string; there were also some gentlemen attached to the sport, who likewise carried their bags and lures.

“ After waiting awhile, some herons passed, but at too great a distance; at length one appeared to be coming within reach, and preparations were made to attack him. Each falconer was furnished with a brown leather glove on the right hand (I suppose, to prevent the talons of the bird from scratching it), on which the falcon perched; and there was a small bit of leather attached to the leg of the bird, and which was held by the falconer between the thumb and finger. Each of the men thus equipped, with a falcon on one fist, and the bag with the lure tied to the waist, and mounted on horseback, proceeded slowly in a direction towards where the heron was seen approaching. As soon as the heron was nearly opposite, and at what I conceived a great height in the air, the falconers slipped the hoods from off the heads of the falcons, and held each bird on the fist by the bit of leather till the falcons caught sight of the heron, and then a most gallant scene ensued. The instant they were liberated, they made straight for their prey, though at a considerable distance ahead. As they were dashing away towards the heron, a crow happened to cross; and one of them instantly darted at him, but he struck into a plantation and saved himself: the falcon

dashed in after him, but did not take him. The other falcon soon overtook the heron (which immediately disgorged its bal-last of two or three fishes); and after flying round in circles for some time, at length soared above him, and then struck him on the back; and they both came tumbling down together, from an exceeding great height, to the ground. The other falcon, having lost some time with the crow, was flying very swiftly to assist his comrade, and had just come up at the time the falcon and heron were falling. At this instant, a rook happened to fly across; the disappointed falcon struck at him, and they both fell together within twenty yards of the other falcon and the heron. When on the ground, each falcon began to pull to pieces its victim; but, as soon as the falconers rode up, the lures were thrown out, and the falcons suffered to make a meal (having previously been kept fasting) upon the pigeon, which was laid on the carcass of the heron; and, after they were satisfied, were again hooded and put up for that day.

“The next cast consisted of two younger birds; and when let loose at another heron, they flew up to it very well. But the heron was an old one, and supposed to have been caught before; for the moment he was aware of his enemies below, he began to soar into the air, and set up a loud croak: and these, not so experienced as the first two falcons, would not attack him, but soared about and left him. Upon this, one of the falconers set up a peculiar call, to which, no doubt, the birds were trained; when one of them, from a very great elevation in the air, immediately closed his wings, darted down to the man who called him, and was taken in hand. This was a very extraordinary manœuvre, and an instance of tractable sagacity. The other falcon did not come to the call, but sailed about in the air. At length a heron crossed, and the falcon attacked it, but again left it. A third heron also came in his way: this he also fell to work with, and, after a short struggle, brought him to the ground in the same style as the first. This last heron had his wing broken, and the falconer killed him; but the first was taken alive, and was afterwards turned out before a single falcon, which struck him down in a minute. I understood, that, when a heron had once been taken by a falcon, he never made any more sport. It was the case with this one; for, the moment he saw his enemy coming towards him, he lost all his powers, and made a

ridiculous awkward defence on the ground; where the falcon would soon have despatched him, if the falconer and his lure had not been near at hand.

“This sport was to me an extraordinary treat, from its novelty and the excitement which it caused; but there were circumstances attending it which would have made the farmers stare and swear in some counties, for the horsemen rode through fields of standing corn with as little ceremony as the titheman, but with much more celerity: and the sport was more dangerous than fox-hunting; for the eye, being constantly aloft to view the aerial diversion, the chasms and sinuosities of mother earth were not so observable as when the object of pursuit lay more at right angles with the vision of the pursuer.”

THE BITTERN, OR MIRE-DRUM.

This bird is more plentiful in Scotland than in England, and inhabits marshy tracts. His remarkable note has been spoken of by many a poet. Thomson, believing erroneously, that the sound was made while the bird plunged its bill in the mud, says,

“So that scarce
The bittern knows his time with bill engulph’d,
To shake the sounding marsh.”

And Southey says,—

“At evening o’er the swampy plain
The bittern’s boom came far.”

It is with much difficulty that this bird can be roused from his lurking place; but when he takes wing, his flight is rapid, high, and spiral, as the poet last quoted observes,—

“Swift as the bittern soars on spiral wings.”

Sir Walter Scott also, beautifully alludes to this bird—

“And the lark’s shrill pipe shall come
In the morning, from the fallow,
And the bittern beat his drum
In the ev’ning, from the hollow.”

When the bittern is attacked by a bird of prey, it defends it-

self with great courage, and generally beats off such assailants ; neither does it betray any symptoms of fear, when wounded by the sportsman, but eyes him with a keen and undaunted look, and when driven to extremity, will attack him with the utmost vigour ; wounding his legs, or aiming at his eyes with its sharp and piercing bill.

Mr Markwick once shot a bittern in frosty weather ; it fell on the ice, which was just strong enough to support the dogs, and they immediately rushed forward to attack it ; but being only wounded, it defended itself so vigorously, that the dogs were compelled to leave it, till it was fired at a second time and killed. The bittern is still valued on account of its fine flavour, and is usually sold in the London market at half-a guinea. It was formerly held in much estimation at the tables of the great.

The cry of the bittern is often heard at twilight in the mountain hollows of Scotland, and has a dreary effect. The following sonnet refers to it in these localities.

“ Now while night's dancing lamps the waste illumine,
And a rich silence bindeth earth and sky,
I hear thy deep and long-repeated cry
Break through the dimness, with a sudden boom,
From some reed-circled lonely pool, whereon
None gazeth save the pale-eyed stars and thee,
What time thou sitt'st in moveless reverie
When all the voices of the day are gone.
Rest thee once more, unmindful of the tread
Of one who loves like thee this silent scene
For its wide silence ! seek thine ancient bed,
There come no saddening dreams of what hath been.
Thou'rt on the wing, and chilly-finger'd fear
Holds my best reason as if ill were near.”

THE AMERICAN BITTERN.

The following remarkable account is given of this bird, in Loudon's Magazine of Natural History, vol. ii. page 64. Although almost improbable, the testimony of one so respectable as Mr F. Peale induces us to believe it.

“ I was much interested with an account I heard the other day of a bird, a species of heron. I believe it is called by Wilson

in his Ornithology, the Great American Bittern; but what is very extraordinary, he omits to mention a most interesting and remarkable circumstance attending it, which is, that it has the power of emitting a light from its breast, equal to the light of a common torch, which illuminates the water, so as to enable it to discover its prey.

“As this circumstance is not mentioned by any of the naturalists that I have ever read I had a difficulty in believing the fact, and took some trouble to ascertain the truth, which has been confirmed to me by several gentlemen of undoubted veracity, and especially by Mr Franklin Peale, the proprietor of the Philadelphia Museum.”

THE SPOONBILL.

The white spoonbill visits this country, though very rarely. The roseate spoonbill is peculiar to America. They are easily tamed, and are found of service in warm countries where serpents and other reptiles infest the neighbourhood and even the dwellings of man. These the spoonbill devours in great quantities.

THE RED FLAMINGO.

This remarkable bird is common in North America. It is beautifully alluded to by Campbell in his Gertrude of Wyoming.

“Then where of Indian hills the daylight takes
His leave, how might you the flamingo see
Disporting like a meteor on the lakes.”—

It prefers a warm climate, and in the old continent is not often met with beyond forty degrees North or South; every where on the African coast, and adjacent isles, quite to the Cape of Good Hope, now and then on the coasts of Spain, Italy, and those of France, lying in the Mediterranean sea, also in various parts of Africa.

During the French revolutionary war, when the English were expected to make a descent upon St Domingo, a Negro having perceived, at the distance of some miles, in the direction of the sea, a long file of flamingoes, ranked up and preening their wings,—forthwith magnified them into an army of English soldiers; their long necks were mistaken for shouldered muskets, and their scarlet plumage had suggested the idea of a military costume. The poor fellow accordingly started off to Gonaves, running through the streets, and vociferating that the English were come. Upon this alarm the commandant of the garrison instantly sounded the tocsin, doubled the guards, and sent out a body of men to reconnoitre the invaders; but he soon found, by means of his glass, that it was only a troop of red flamingoes, and the corps of observation marched back to the garrison, rejoicing at their bloodless expedition.* The flamingo is web-footed, but does not swim.

THE AVOSET.

This bird breeds in the fens of Lincolnshire, and in Romney marsh in Kent. It is found in Britain at all seasons. In winter it frequents the sea shore. It is widely diffused on the continent, inhabiting Denmark, Sweden, Russia, Siberia and the Caspian sea, and more plentifully on the salt lakes in the deserts of Tartary. In winter, they assemble in small flocks of six or seven, and frequent our shores, more especially at the mouths of large rivers. In these situations, they seek for worms and marine insects, scoop them out of the mud or sand with much dexterity, for which their bent up bills seem peculiarly adapted. The avoset lays two white eggs tinged with green, and marked with large black spots; they are about the size of those of a pigeon. It is said to be much attached to its young, and when disturbed during incubation, it will fly round in repeated circles, uttering a sharp note that resembles the word *wit*, twice repeated. Although this bird is web-footed, it has

* Architecture of Birds.

never been known to swim. Montague says, " We remember one of this species being wounded in the wing, and floating with the tide for near a mile, when it was taken up alive without ever attempting to swim ; so that the palmated feet seem only intended to support it on the mud."

SMALL BIRDS OF THE CRANE KIND.

THE CURLEW.

"THE curlew in his natural state," says Professor Rennie, "is so remarkably shy, that he is with difficulty approached ; but, like other birds wholly dependent for their daily subsistence, soon becomes docile.— One that was shot in the wing, was turned amongst some aquatic birds, and was at first so extremely shy, that he was obliged to be crammed with meat for a day or two, when he began to eat worms ; but as this was precarious food, he was tempted to eat bread and milk like the ruffs. To induce this substitution, worms were put into a mess of bread and milk, and it was curious to observe how cautiously he avoided the mixture, by carrying every worm to the pond, and well washing it, previously to swallowing. In the course of a few days, this new diet did not appear unpalatable to him, and in little more than a week, he became partial to it, and from being exceedingly poor and emaciated, got plump and in high health.

"In the course of a month or six weeks, this bird became exceedingly tame, and would follow a person across the menagerie for a bit of bread, or a small fish, of which he was remarkably fond. But he became almost omnivorous ; fish, water-lizards, small frogs, insects of every kind that were not too large to swallow, and (in defect of other food) barley with the ducks was not rejected."

The curlew frequents wild swampy uplands, where its melancholy note is heard, generally at a distance. Its flight is graceful, and long sustained ; for its wings are very expansive in proportion to the size of the body. It often flies in circles, and when

not disturbed, will continue for a considerable time to describe nearly the same circumference, so that the sportsman may judge pretty accurately, by observing the bird, under what tree or thicket he should keep watch to bring it down. This bird is known in Scotland by the name of the *whaup*. Colour on the upper parts, black mingled with ash, and shining blue ; under parts white. The bill is very long, and much arched.

THE WOODCOCK.

The woodcock measures fourteen inches in length, and twenty-six in breadth, and generally weighs about twelve ounces. The shape of the head is remarkable, being rather triangular than round, with the eyes placed near the top, and the ears very much forward, nearly in a line with the corners of the mouth. The upper mandible, which measures about three inches, is furrowed nearly along its whole length, and at the tip, it projects beyond and hangs over the under one, ending in a kind of knob, which, like those of others of the same genus, is susceptible of the finest feeling, and calculated by that means, aided, perhaps, by an acute sense of smell, to find the small worms in the soft moist grounds, from whence it extracts them with its sharp-pointed tongue. Montague says, "A woodcock, in a menagerie, very soon discovered and drew forth every worm in the ground, which was dug up to enable it to be done ; and worms put into a large garden pot, covered with earth five or six inches deep, are always cleared by the next morning, without one being left."

The woodcock is very widely distributed. It is found in all parts of the old continent from North to South. In some places it is said to remain the whole year, only changing its haunts, from one locality to another during the breeding season, from the plains to the mountains.

The woodcock is one of those migratory birds which do not habitually breed in Britain. Their time of arrival here is from the end of October till the beginning of December, depending much upon the state of the season ; and they usually leave us about the end of April. There are, however, various well authenticated instances of woodcocks breeding in this country. In

the year 1795, the Rev. Mr Wheatear, of Hastings, found a nest, with four eggs, in a wood near Battle, in Sussex. In 1802, Mr Foljamb possessed a specimen of a half fledged bird, taken in Broads-worth wood, near Doncaster; and in 1805, a brood of four was hatched in a wood at Shucocks, near Worksop. The nest from which these last were taken, consisted of moss, bent, and dry leaves. On the 19th May, 1828, James Smith, keeper to John Chetwood, Esq. of Ansley, near Nuneaton, shot two young woodcocks in a wood called Hore Park, in that neighbourhood; and on the following day, an old bird was shot by Smith, at the same spot. John Wigson, woodman to William Dilke, Esq. discovered a woodcock sitting on four eggs, in Regton wood, near Coventry, in the beginning of May 1829. From some cause, however, the nest was deserted, and several of the eggs destroyed. On breaking one that remained, it was found to be nearly ready to hatch; a fact proving that the old birds had commenced the business of nidification about the beginning of April, which is earlier than many individuals of this species leave Britain, in general, for northern latitudes; thus affording pretty strong evidence in favour of woodcocks pairing before their departure. On the 15th April, 1828, a nest with four eggs in it was found at Chicksand wood, near Sheffield. On the 8th August, of the same year, a woodcock was shot in Florida demesne, county of Down, Ireland, which must have remained through the summer: and at this moment, the 15th of April, 1833, there is in a plantation at Dumphail, belonging to C. L. Cumming Bruce, Esq. a woodcock's nest, with four eggs in it. The nest is built upon the ground, in an open part of the wood, and the eggs are similar in colour to that of the partridge, but larger in size, with some biggish brown spots at the larger ends.

Woodcocks, like many other migratory birds, return year after year to their former haunts. The following well-attested circumstance is related by Bewick on the authority of Sir John Trevelyan, Bart. of Wallington and Nettlecombe. "In the winter of 1797, the gamekeeper of E. M. Pleydell, Esq. of Watcombe, in Dorsetshire, brought him a woodcock, alive and unhurt, which he had caught in a net set for rabbits. Mr Pleydell scratched his name upon a bit of thin brass, bent it round the woodcock's leg, and set the bird at liberty. In December,

the next year, Mr Pleydell shot this bird, with the brass about its leg, in the same wood where it had been first caught."

White says, "I used to observe when I was a sportsman, that there were times in which woodcocks were so sluggish and sleepy, that they would drop again when flushed, just before the spaniels, nay, just at the muzzle of a gun that had been fired at them." There can be little doubt but this was occasioned by excessive fatigue after their long journey, over the ocean.

A white woodcock was seen three successive winters in Penrice wood, near Penrice castle, in Glamorganshire. It was repeatedly flushed and shot at during that time, in the very same place where it was first discovered. At last it was found dead, with several others which had perished by the severity of the weather, in the winter of 1793. This fact was also communicated to Bewick by Sir John Trevelyan, Bart., on the authority of the Rev. Dr Hunt, and proves not only the existence of white woodcocks, but also, that they return to their former haunts year after year.

The inhabitants of Sweden have acquired a great liking to the eggs of wild fowl, and among others to those of the woodcock; and they encourage the peasantry to find out their nests, and rob them of their eggs. Those of the woodcock are considered a great delicacy, and consequently are taken in great numbers, and brought to the market at Stockholm. They never eat the birds themselves, esteeming their flesh unwholesome, from the circumstance of their having no crops.

Wood-cocks are remarkably tame during incubation. A person who discovered one of their nests often stood over the female bird while sitting, and even stroked it with his hand. This seemed to give it no alarm, as it continued to sit, hatched the young ones, and, in due season, disappeared with them.

A single woodcock was observed to remain in a coppice, belonging to a gentleman in Dorsetshire, through the summer. The place, from its shady and moist situation, was well suited to the bird; yet, gradually, from some disease, no doubt, it lost all its feathers, and being unable for a time to fly, was often caught. In the autumn it recovered its feathers and its strength, and flew away.

Woodcocks are frequently seen at sea in their migrations. A learned writer informs us, on the authority of Mr Thomas

Travers, of Cornwall, that the mariners of a ship which was farther from land than any birds are usually noticed, discovered a bird hovering over them. When they first saw it, it seemed among the clouds : however, it gradually descended, took several circuits round the vessel, and at length alighted on the deck, and turned out to be a wood-cock, which probably had been separated from its fellows in its journey northward. It was so exhausted, that it allowed itself to be laid hold of by one of the sailors.

BRITISH SNIPES.

Of this interesting tribe five distinct species have been ascertained to inhabit the British Islands ; viz. The Solitary Snipe, the Common Snipe, or heather bleater, the Jack Snipe, or Jud-cock, the Brown Snipe, and Sabine's Snipe.

There is a peculiarity in the beak of all the species of this genus, which should be particularly remarked. If the upper mandible be macerated in water for a few days, the skin or cuticle may be readily peeled off, and the bones thus laid bare exhibit numerous elongated hexagonal cells, which afford at the same time protection and space for the expansion of minute portions of nerves supplied to them by two branches of the fifth pair, and the end of the bill becomes, in consequence of this provision, a delicate organ of touch to assist these birds when boring for their food in soft ground. This enlarged extremity of the beak, which it will be recollected is a generic distinction, possesses such a degree of sensibility as to enable these birds to detect their prey the instant it comes in contact with it, although placed beyond the reach of sight. It is well known that these birds feed on the margins of lakes and ditches, pushing their bills into the thin mud, by repeated thrusts, quite up to the eyes, and take worms and grubs, at a great depth under the surface of the mud, in the same manner as ducks.

At pages 346 and 347 of volume third of Goldsmith, we have noticed the common and jack snipes.

The Solitary snipe. This bird has sixteen tail feathers, the five outermost white, barred with black ; the abdomen, sides and

thighs, are barred with triangular black markings. Its length from the tip of the bill to the end of the tail, is eleven inches and a half, and the length from the tip of the bill to the end of the toes, fourteen inches and a half: the length of the bill, in general, is from two inches and three eighths to two inches and a half. Extent of wings nineteen inches; weight of the bird, from seven to seven ounces and a half.

The Brown snipe. This bird was first known as a British species, in the month of October, 1801, when a specimen was killed in Devonshire. The length of the bill is two inches and a half; the whole length of the bird eleven inches, and its weight only three ounces and a quarter. The head, neck, breast, and wing coverts, are ash-coloured brown, without spots, with a streak of the same colour from the base of the beak to the eye; above the eyes, the throat, belly, and thighs, is pure white; the flanks white, varied with light brown; the back and scapulars light brown, each feather having a darker brown edge; the rump with the upper and under tail coverts, white marked across with black bars, the tail feathers also crossed with narrow black and white bars alternately.

This bird seems identical with the American species, which is figured in Wilson's American Ornithology, under the name of the red-breasted snipe, and appears to be very common on the American continent, while it is so rare in Europe, that Temminck in the second edition of his Manual of Ornithology, says, "that he is only acquainted with two instances of this species having been killed there; once in England, and once in Sweden;" and another instance may be mentioned, of a very fine specimen in its summer plumage, having been recently killed near Yarmouth, for which two guineas were immediately given by a collector in that neighbourhood.

It is inconceivable how a bird, with such short wings as the snipe, could have migrated across the mighty expanse of the Atlantic ocean, as there cannot be a doubt but these birds have winged their way from the new world.

Sabine's Snipe. The first record of this bird appeared in the fourteenth volume of the Linnean transactions. The length of the bill in this species is nine inches and eight-tenths of an inch. The general colour of the plumage is dark brown, spotted and barred with lighter chestnut-brown. The first of this species,

which appears not to have been previously known to ornithologists, was shot in August, 1822, in the Queen's County, Ireland. A second was shot on the banks of the Medway, near Rochester, in October, 1824. A third specimen has lately been mounted by a London bird-preserver; and during the winter of 1829, a fourth was shot, by a nobleman upon his own estate in Hampshire.

In severe frosts, snipes driven by the extremity of the weather resort to sheltered springs, unfrozen boggy places, or any open water. Here they are often found in large flights, and so subdued by cold or hunger, that they will sit till nearly trodden upon before they will take flight.

During the breeding season these birds play over the moors, piping and humming in a pleasing and singular manner; they always hum as they are descending. Montagu says that "in the breeding season the snipe changes its note entirely from that it makes in winter. The male will keep on the wing for an hour together, mounting like a lark, uttering a shrill piping noise; it then descends with great velocity, making a bleating sound, not unlike an old goat, which is repeated alternately round the spot possessed by the female especially while she is sitting on her nest."

In the summer time snipes disperse to different parts, and at this season they are found even amongst the highest mountains, as well as on the lowest and most extensive moors. They are migratory; a considerable portion of them leaving Great Britain in the spring of the year, and returning in the autumn. Many, however, remain with us the whole year.

Young snipes are able to run off almost immediately after they are freed from the shell; but they are attended by the parent birds until their bills have acquired sufficient firmness to enable them to provide for themselves.

The Rev. Mr Daniel states, "that about thirty years ago, snipes were so abundant in the fens of Cambridgeshire, that as many were taken in Milton Fen, by means of a lark-net, in one night, and by a single man, as could be contained in a small hamper.

Mr Tunstall mentions, that "a very curious pied snipe was shot at Battley meadow, near Oxford, on the eighth of September, 1789, by a Mr Court: its throat, breast, back, and wings, were

beautifully covered or streaked with white, and on its forehead was a star of the natural colour; it had also a ring round the neck and the tail, with the tops of the wings of the same colour."

The Godwit.—This bird frequents the sea-shore; but as it is very timid, and weak-sighted, it keeps concealed during the glare of day, and is seldom seen except at evening or early dawn. They go in large flocks, and are continually changing their quarters, it being no uncommon thing for them to evacuate within four and twenty hours, the place which they had apparently fixed on for a lengthened sojourn; and this, too, after a long flight. Their migrations are performed during twilight or moonlight. The flesh of the godwit is considered a great delicacy.

The Green Shank, the redshank, the spotted redshank, resemble the other birds of the crane kind, in haunts and habits. A full description of their relative size and appearance will be found in the notes to Goldsmith.

THE RUFF.

This bird is considered to be migratory; and is very local as a British species, its range being chiefly confined to the fens of Lincolnshire, Cambridgeshire, the East Riding of Yorkshire, and the Isle of Ely.

The summer and winter plumage of the ruff are very different: the female bird is considerably less than the male.

The long feathers on the neck and sides of the head in the male, that constitute the ruff and auricles, are of short duration, being scarcely completed in the month of May, and beginning to fall at the latter end of June. The change of these singular parts is accompanied by a complete change of plumage; the stronger colours, such as purple, chestnut, and some others vanish at the same time, so that in their winter dress they become nearly of one colour; but it has been observed, that those who had the ruff more or less white, retained that colour about the neck after the summer or autumn moulting was over.

The females, which are called Reeves, begin to lay about the first or second week in May; and their nests have been found with young ones as early as the third week in June.

Ruffs are considered a great delicacy, and are caught in nets, by fowlers, who make a trade of selling them for about ten shillings per dozen, to persons who feed and dispose of them again at from thirty shillings to two guineas per dozen.

Mr Towns, the noted feeder at Spalding, is descended from a family who have continued this occupation since the time of George the Second; that is, for about one hundred years. When the Marquis of Townsend was Lord-Lieutenant of Ireland, he solicited Towns to take some ruffs to that country, and he accordingly set off with twenty-seven dozen of these birds, from Lincolnshire. On his way to Holyhead he left seven dozen at Chatsworth, the seat of the Duke of Devonshire, and continuing his route, arrived safely in Dublin with seventeen dozen live birds, having only lost three dozen in this long journey; which is the more remarkable, as they were much confined and crowded, being hung in baskets, slung across the backs of two horses.

It is a strong proof of the hardy constitution of these birds, that so many of them survived so long and distressing a journey, and that so soon after they were captured; and necessarily fed upon food to which they were unaccustomed. But it would appear, that considerable care and experience is required in the fattening of them, for, out of the seventeen dozen delivered at Dublin Castle, not more than two dozen survived, so as to be served up at table.

The Sanderling. This bird inhabits the sea-shores of Europe, Asia, and North America. From these localities they seldom stray from choice, so that when seen inland, it may be generally inferred that they have been driven thither by stress of weather.

The Dunlin. This bird is diffused all over the north of Europe. It is about the size of a snipe, but has a much shorter bill.

The Knot, the Purre, and the Stint resemble their congeners in almost every respect. It will be observed that Goldsmith has contented himself with a general description of the smaller birds of the crane kind, and we shall only be particular about the more remarkable of them.

THE LAPWING.

Few birds are more interesting in their habits than the lapwing. Its loud, unremitting, yet not unmusical whoop, is familiar to every Scottish child. Lively and frolicsome, it is one of the greatest ornaments of our bogs, and affords one of the strongest instances of maternal instinct that nature has furnished. Who, that has chased its glossy crest over the heathy hillocks where it delights to scoop its artless nest, has not marvelled at the ingenious devices it resorted to, to lure him from the sacred spot where its eggs or young were deposited ?

With the same intent the lesser birds of our climate seem to fly after a hawk, cuckoo, or owl, and scream to prevent their companions from being surprised by those enemies. The lapwing, when her unfledged offspring run about the marshes where they are hatched, not only gives the note of alarm, at the approach of men and dogs, that the young may conceal themselves ; but, flying and screaming near the intruders, she appears more solicitous and impatient as they go farther away from the place of concealment, so that she may effectually mislead them, and generally succeeds in her design. This stratagem is more like a dictate of reason than of instinct.

“ Hence, round the head
Of wandering swains, the white-wing'd plover wheels
Her sounding flight ; and then directly on,
In long excursions, skims the level lawn
To tempt them from her nest.”

Two lapwings were given to a clergyman, who put them into his garden. One soon died, but the other continued to pick up such food as the place afforded, till the winter deprived it of its usual supply. Necessity soon compelled it to draw nearer the house ; and it gradually became familiarized to the occasional interruptions from the family. At length, one of the servants, when she had occasion to go into the back kitchen with a light, observed that the lapwing always uttered his cry of “ *pee-wit*,” to obtain admittance. He soon grew more familiar : as the winter advanced, he approached as far as the kitchen, but with much caution, as that part of the house was generally occupied by a dog and cat ; their friendship, however, the lapwing at

length conciliated so entirely, that it was his regular custom to resort to the fireside when it grew dark, and spend the evening and night with his two associates, sitting close by them, and partaking of the comforts of warmth. As soon as spring appeared, he discontinued his visits to the house, and betook himself to the garden; but on the return of winter, he had recourse to his old shelter and friends, who received him very cordially. Security at length became productive of insolence: what at first he obtained with caution, was afterwards taken without reserve. He frequently amused himself with washing in the bowl which was set for the dog to drink out of; and while thus employed he showed marks of the greatest indignation, if either of his companions presumed to interrupt him. He died in the asylum he had thus chosen, being choked with something which he picked up from the floor.

These birds manifest somewhat resembling human attachment to particular spots. One park we know, which they will not desert, although the plough has passed over it, and potato crops have flourished dry, where of old the rush and cannach waved over the plashy ground. Does the lapwing remember like man, the home of early days, and love it in spite of time and change? The general colour of the lapwing is green above, and white on the under parts. The head of the male is surmounted by a long crest, which leans backwards.

THE LONG-LEGGED OR STILT PLOVER.

Mr White gives the following interesting account of these curious animals. "In the last week of April, 1779, five of these most rare birds were shot upon the verge of Frencham-pond, a large lake belonging to the Bishop of Winchester, and lying between Woolmer forest and the town of Farnham, in the county of Surrey. The pond-keeper says, there were three brace in the flock, but that after he had satisfied his curiosity, he suffered the sixth bird to remain unmolested.

"One of these specimens I procured; and found the length of the legs to be so extraordinary, that, at first sight, one might have supposed the shanks had been fastened on, to impose on

the credulity of the beholder; they were legs *in caricatura*; and had we seen such proportions in a Chinese or Japan screen, we should have made large allowance for the *fancy* of the draughtsman.

“These birds are of the plover family, and might, with propriety, be called the *stilt plover*. My specimen, when drawn and stuffed with pepper, weighed only four ounces and a quarter, though the naked part of the thigh measured three inches and a half. Hence we may safely assert, that these birds exhibit, weight for inches, the greatest length of legs of any known bird. The flamingo, for instance, is one of the most long-legged birds, and yet it bears no proportion to the himantopus, or long-legged plover; for a cock flamingo weighs, at an average, about four pounds avoirdupois; and his legs and thighs measure usually about twenty inches. But four pounds are fifteen times and a fraction more than four ounces and a quarter; and if four ounces and a quarter have eight inches of legs, four pounds must have one hundred and twenty inches and a fraction of legs, or somewhat more than ten feet; such a monstrous proportion as the world never saw! If we try the experiment in still larger birds, the disparity would increase. It must be matter of great curiosity to see the stilt plover move, to observe how it can wield such a length of lever with such feeble muscles as the thighs seem to be furnished with. At best, one should expect it to be but a bad walker; but what adds to the wonder is, that it has no back toe. Now, without this steady prop to support its steps, it must, theoretically, be liable to perpetual vacillations, and seldom able to preserve the true centre of gravity.” To this last observation we would answer, that nature is ever careful to provide every animal with an equivalent, for what may appear an imperfection to short-sighted man.

The long-legged plovers are a widely diffused species, being common in the south of Europe, in Egypt, on the shores of the Caspian sea, in the southern deserts of Independent Tartary, and in Madras in India.

The Golden Plover. This species is very plentiful and very widely diffused. They frequent sea-shores and the mouths of rivers, congregating in such numbers as soon to exhaust the food to be found in any one place. They are therefore compelled to shift their quarters very often. Their food consists of insects

and worms. The latter, it is said, they will cause to come above ground, by striking with their feet. The worms are supposed to mistake the noise thus produced, for the approach of their dreaded enemy the mole.

The Doterel. This bird is partially diffused over Britain. It is a very stupid little animal, a circumstance much in favour of those who hunt it for the table, of which it forms an esteemed luxury.

The Turnstone. The name of this bird arises from its manner of seeking the insects which constitute its food. This it does by overturning the stones under which they lurk.

The Whimbrel. This bird is like the curlew in form, plumage, and habits, but is about a half less.

We shall now notice two birds—the water-hen and the coot, which though formed like the crane tribe, approximate in their habits to the water-fowl properly so called. Their feet are not completely webbed; but the toes have a membranous fringe, which enables these birds to swim.

THE WATER-HEN.

This bird frequents the sedgy margins of ponds and rivulets, and never strays far from its original locality. It is very timid, and runs with great velocity through the mazes of the herbage. The nest-seeking boy has many a tantalizing chase after the water-hen, which, as it never flies but when pressed to the utmost extremity, seems always within his reach, and always eludes him, either by running or diving; keeping all the while, perhaps, within the circuit of a few yards. That so timid a bird should prefer taking up its abode in the neighbourhood of man, is not a little singular. The apparent inconsistency ceases, however, when we consider its means of escaping him, and the protection from other enemies, which it derives from his vicinity.

THE COOT.

This bird is larger than the preceding, but they are similar in

form and habits. It is found chiefly in lakes, among the reeds of which it builds its floating nest. Though a timid bird like the water-hen, it will not readily forsake its chosen haunt. We have known half a dozen sportsmen employed successfully for a whole day in shooting the coots upon one lake, and that too, not of great extent. A short cessation sufficed after a volley to allow the birds which had taken wing to return and submit to the chance of perishing like their companions. When the sport ceased, the survivors resumed their old occupations of paddling about and dipping for food, just as if nothing had happened. Many of these birds may be seen disporting on the romantic lake of Duddingston, in the vicinity of Edinburgh.

The Grebe is mentioned by Goldsmith in connection with the two preceding, which it resembles in the form of its toes. These, like the toes of the coot, have a scalloped fringe. Its legs are short and placed far back like those of the penguin tribe, being adapted rather for swimming than walking. On this account and the shortness of its wings, the grebe almost never leaves the water. Like the web-footed class, its prey consists of fish. We shall add the two following to this intermediate list.

The Water-rail. This bird inhabits watery places in Europe and Asia, where it hides itself among the sedges, running and swimming with great celerity, but flying heavily, and with its legs hanging down. Colour, on the wings, grey spotted with brown; flanks spotted with white; bill, orange beneath.

The Land-rail. This bird is best known by its provincial name *corn-crake*, which is very appropriate, as most Scots names are. The *corn-crake* is very seldom seen, though every body is acquainted with its cry. Those who wish to shoot or trap it, make use of two bones, one notched after the manner of a saw, and one smooth which is drawn smartly along the teeth of the other, and produces the *crick crick* of the bird so accurately, that it will come to the spot from whence the sound issues. The person is concealed among bushes, or long grass. This bird resembles the partridge in colour, has much longer legs, and a smaller body.

WATER-FOWL.

WE are now come to the last and not the least interesting division of the bird tribes. Our scene will shift in rapid transition from one shore of ocean to another. Sometimes it will be laid where 'first the sun gilds Indian mountains,' and anon 'where his setting beam flames on the Atlantic isles.' Our object shall be, as heretofore, to lay such anecdotes before the reader as will afford entertainment, while at the same time they serve to illustrate the important principle, that *nature has made nothing in vain.*

THE PELICAN.

This remarkable bird is found in almost every part of the globe. Its habits and appearance have been often described, and are so well known, that little remains to be added. In the account of the Tower Menagerie, published in 1829, we find the following interesting and novel particulars respecting a pelican kept in the Tower of London.

The female is now sitting upon three eggs, and has built herself a very perfect nest for the purpose. Should these be brought to maturity, as there is every reason to expect, they will probably be the first that were ever hatched in England. She never quits her charge; but is fed by the male, who crams his pouch with double his usual allowance, and then proceeds to shovel her fair share into his partner's throat. It is in this manner also that the young are fed, the old bird pressing his full

pouch against his chest, and contriving thus to disgorge a portion of its contents ; an action which has no doubt given rise to the fabulous notion of the pelican's feeding its young with its own blood. In fact, the appearance of the bird when in this attitude, with the bloody spot on the end of its bill, closely pressed against the delicate plumage of its breast, may readily account for the prevalence of such an idea in the minds of superficial observers. The first traces of this fable are to be found in the writings of some of the early fathers of the church, and it was eagerly adopted by the heralds of later days, whose unbounded credulity was ever on the watch for the marvellous, in natural history more especially.

THE WANDERING ALBATROSS.

This gigantic bird is the largest of the gull tribe ; and inhabits most seas.

Many of the Indians set a high value on the feathers of the albatross, which they use for arrows, as they last much longer than those of other birds. The natives of the South sea islands watch at the rainy season the arrival of the man-of-war birds, as they are called, and, when they observe them, they launch from their canoes into the water, a light float of wood baited with a small fish. When one of the birds approaches it, a man stands ready with a pole, about eighteen feet in length ; and on its pouncing, he strikes at it, and seldom fails of bringing it down. If, however, he misses his aim, he must wait for some other bird, for that one will no more be tempted to approach. The male birds are reckoned the most valuable, and sometimes even a large hog is given in exchange for one of them.

The inhabitants of Kamtschatka make buoys to their nets, of the intestines of the man-of-war birds, which they blow up like bladders. They also make tobacco pipes and needle cases of the bones of the wings ; and use them for heckling the grass, which serves them instead of flax. The flesh is very hard and dry, and has a fishy taste.

THE CORMORANT.

This bird is extremely voracious, and will eat till it is so gorged, as to become quite stupid; at which times it is easy to take it in a net, or even to throw a noose over its head. In 1798, a cormorant was seized whilst perched on the top of a rock, just behind the town of Caernarvon; and in the year 1793, one was observed sitting on the vane of St Martin's steeple, Ludgate Hill, London, and was shot in the presence of a great number of people.

It is curious to observe with what dexterity cormorants, and indeed all other birds which prey upon fishes, turn them before swallowing them. If the tail of the fish is presented to the bird, it invariably turns round the head, so that it may swallow it first, knowing well that otherwise the fins and spines would wound its mouth. We have had frequent opportunities of witnessing this, at the beautiful little villa of Patrick Neill, Esq. Canon Mills, Edinburgh. Being deeply devoted to the study of nature, he has always a great number of birds and other animals as much at freedom as possible, within the walls of his garden. We remember some years ago, that we went to see his collection with a friend, when a servant showed us the manner in which the cormorant and solan goose fed. She threw a haddock into a little pool of water, and a scramble immediately ensued between them. The solan goose got first hold of the haddock, and had nearly half swallowed it, when the cormorant seized it by the tail, and by means of the crooked point of his bill, fairly pulled it up the goose's throat, and putting it into the water, with the quickness of lightning, turned it, and swallowed it in an instant.

A cormorant, kept by Colonel Montagu, was extremely docile. It was taken by surprise under the banks of a rivulet running into the British channel, by a Newfoundland dog, and not being in its accustomed plumage, was reported to him as a curious and unknown species. It reached him after having been conveyed for twenty-four hours by coach. Every sort of food at hand was offered to it, but it rejected all. It would not even take raw flesh, so that they were compelled to cram it, to keep it alive; nor did it offer any violence with its powerful bill during

this operation. The Colonel having retired to the library, after seeing the bird fed, was surprised in a few minutes to see it walk boldly into the room, unceremoniously place itself by him at the side of the fire, and begin to dress its feathers. This practice it continued till removed to an aquatic menagerie. Whenever it saw the water it became restless, and on being set at liberty, plunged into it, and incessantly dived for a considerable time in search of fish. After this, it seemed to be convinced that there were none to be found there, as it was not noticed to dive again for three days. "If by accident a large fish sticks in its gullet," says Professor Rennie, "it has the power of inflating that part to the utmost, and while in that state, the head and neck are shaken violently, in order to promote its passage. This is a property we never observed in any other bird, but it is probably common to the rest of the tribe, or such as are destitute of nasal apertures. That all birds have a communication between their lungs and the cavity of their body surrounding the *viscera*, more or less, is well known; but as there is no passage into the *oesophagus*, but by the mouth, to effect this inflation, a violent compression of the body becomes necessary at the same time the bill is closed, and the air is forced back into the mouth and pressed into the gullet. It is observable, that in the act of fishing, this bird always carries its head under water, in order that it may discover its prey at a greater distance, and with more certainty than could be effected by keeping its eyes above the surface, which is agitated by the air, and rendered unfit for visual purposes. If the fish is of the flat kind, it will turn it in the bill, so as to reverse its position, and by this means such could only be got within the bill: if it succeeds in capturing an eel, which is its favourite food, in an unfavourable position for gorging, it will throw up the fish to a distance, dexterously catching it in a more favourable one as it descends. In thus turning the fish, the dilatable skin under the bill is of great use, but is by no means deserving the name of a pouch, not being capable of more distension than any other part of the *oesophagus*, nor can it be used as a reservoir for provision, either for its own use, or for the use of its young, as asserted by some authors. Another action which seems peculiar to this bird and its congeners, is violently beating the waters with its wings, without moving from the spot, followed by a shake of the

whole body, ruffling all its feathers, at the same time covering itself with water. This singular action it will repeat twenty times, with small intervals of rest, when it will retire to an elevated place on shore, and spread and flap its wings till they are dry."

It is no uncommon thing to see twenty of these birds together on the rocks of the sea-coast, with extended wings, drying themselves in the wind. In this position they remain sometimes nearly an hour, without once closing their wings, and as soon as these are sufficiently dry to enable the feathers to absorb the oil, they press this substance from the receptacle on the rump, and dress the feathers with it. It is only in one particular state that the oily matter can be spread on them; that is, when they are somewhat damp; and the instinct of the birds teaches them the proper moment.

In former times cormorants were trained in Britain for catching fish. It appears that Charles the First had an officer in his household, entitled Master of the Corvorants, which name the bird still bears in many parts of this country.

THE GANNET, OR SOLAN GOOSE.

The Gannet is somewhat more than three feet in length, and weighs about seven pounds. The bill is six inches long; straight almost to the point, where it is a little bent; its edges are irregularly serrated, for the better securing of its prey; and about an inch from the base of the upper mandible there is a sharp process pointing forward. The bill differs from that of most birds, in being without nostrils, and in having on each side of the upper mandible towards the base a dentation that divides the margin, and thus admits of a considerable motion. The general colour is dirty white, with a tinge of ash-colour. Surrounding each eye there is a naked skin of a fine blue colour: from the corner of the mouth a narrow slip of naked black skin extends to the hind part of the head. The neck is long; the body flat and very full of feathers. On the crown of the head, and the back part of the neck, is a small buff-coloured space. The quill feathers and some other parts of the wings, are black; as

are also the legs, except a fine pea-green stripe in their front. The tail is wedge-shaped, and consists of twelve sharp pointed feathers. Bill bluish-grey, legs singularly marked, of a dusky colour, with the front bluish yellow, which divides the feet and forms a line of the same colour; along the ridge of the two forward toes the uniting membrane is unusually strong, and nearly as transparent as glass.

The gannet at certain times rises with difficulty from the water, at which times they may be easily run down by a boat. Montagu says, when surprised they defend themselves obstinately and powerfully, striking with their bills, and pinching very severely. It would seem from the accounts of the fishermen, that the gannet cannot rise from the water, but against the wind, and when this advantage is taken of them they are easily captured. When the stomach of the gannet is replete with fish, and his plumage saturated with water, occasioned by the concussion on the surface, by his rapid descent upon his prey, his only alternative is swimming, for he cannot dive, by reason of his body being so much specifically lighter than the water.

A gannet brought to Colonel Montagu alive, on the 20th of March, 1807, took no kind of food for seven days; it was then crammed with both fish and flesh, and soon after began to devour all white fish greedily, but did not choose to pick up even a plaise when the back was uppermost.

It was remarked, that when the bill was held so as to close the mandibles for a considerable time, respiration became laborious, there being no nostrils. When the bird was placed on the water of a pond, nothing could induce him to attempt to dive; and from the manner of his putting the bill, and sometimes the whole head under water, as if searching for fish, it appears that their prey is frequently taken in that manner. It is probable that more fish are caught in their congregated migrations, when the shoals are near the surface, than by their descent upon the wing; for the herrings, pilchards, mackarel, and other gregarious fishes, cannot at that time avoid their enemy, who is floating in the midst of profusion. In the act of respiration, there appears to be always some air propelled between the skin and the body of this bird, as a visible expansion and contraction is observed about the breast; and this singular conformation makes the bird so buoyant, that it floats high in the water, and

not sunk beneath its surface, as observed in the cormorant and shag. The legs are not placed so far behind as in such of the feathered tribe as procure their subsistence by immersion. The gannet, consequently, has the centre of gravity placed more forward; and when standing, the body is nearly horizontal like a goose and not erect like a cormorant.

It is well known that many birds regurgitate with much ease and facility; and that instinct points out to them the necessity of preparing the food intended for the nourishment of their young, in the receptacle usually termed the craw; in this manner the gannet, having none, can easily disgorge the contents of its stomach to satisfy its young.

By comparative anatomy it has been clearly demonstrated, that birds in general are provided with air vessels in different parts of the body, and that many of their bones are not destitute of this contrivance, admirably fitted for increasing their lightness and consequent buoyancy, as well as progressive motion through that element in which they are intended principally to move. Mr John Hunter, (in the Transactions of the Royal Society) proves, that the air-cells, in the parts already mentioned, have a free communication with the lungs, by means of openings on their surface, through which the air passes readily into them: and it clearly appears there is no *diaphragm* that confines the air to the regions or cavity of the breast, but that the whole of the abdomen is equally inflated by inspiration through the lungs.

Thus far have the scientific researches of that anatomist contributed to our knowledge on this subject. No one appears to have noticed the phenomena attendant on the construction of the gannet, or to what farther extent this circulation of aerial fluid is carried in some particular species of birds. We cannot, however, withhold our highest admiration, when we contemplate the advantages of such a structure in conducing to the comforts, and perhaps to the very existence of such animals.

The gannet is capable of containing about three full inspirations of the human lungs, divided into nearly three equal portions, the cellular parts under the skin on each side, holding nearly as much as the cavity of the body. Now, as a full or extraordinary inspiration of the human lungs has been considered to occupy a space of about sixty cubic inches, so the gannet is ca-

pable of containing not less than one hundred and eighty cubic inches of air at one time, subject to the will of the bird under certain impressions.

The nest of the gannet consists of grass, sea-plants, or any refuse fitted for the purpose that they find floating on the water. The young, during the first year, differ greatly from the old ones ; being of a dusky hue and speckled with numerous triangular white spots. While the female is employed in incubation, the male supplies her with food.

Mr Pennant says, that the natives of St Kilda hold these birds in much estimation, and often undergo the greatest risks to obtain them. Where it is possible, they climb up the rocks which they frequent, and in doing this they pass along paths so narrow and difficult, as in appearance to allow them rarely room to cling, and that too at an amazing height over a raging sea. Where this cannot be done, the fowler is lowered by a rope from the top ; and to take the young ones, oftentimes stations himself on the most dangerous ledges. Unterrified, however, he ransacks all the nests within his reach ; and then by means of a pole or rope, moves off to other places to do the same.

When the gannets pass from place to place, they unite in small flocks of from five to fifteen ; and except in very fine weather, fly low, near the shore, but never pass over it ; doubling the capes and projecting parts, and keeping nearly at an equal distance from the land.

This interesting bird comes to the Bass rock in March, and after breeding there, goes off in September. They neither come nor go away all at one time. It is commonly reported of this bird, that it cannot fly out of sight of the sea ; and the report, says Dr Walker, may be thus accounted for. The keeper of the Bass informed us, that it is scarcely practicable for them to raise themselves off plain ground : which it is easy to imagine must be the case, because of the shortness and particular position of their legs, and the very extraordinary length of their wings. They therefore industriously avoid the land ; but when they happen to rest on it, which is never the case but when they are forced by a storm, their visible inability in taking wing has been ascribed by the vulgar to their being out of sight of their native element. So says the reverend and learned doctor, and his theory may be so far right ; but what is said of the solan goose

may be said of twenty others sea-birds. Who ever saw an auk, a puffin, or a Greenland dove out of sight of land? These birds and the solan goose keep to the sea, because their food lies exclusively in it. The latter hardly ever flies across an isthmus, however narrow it may be, because he is always intent on catching fishes, and keeps his eye continually on the water. As to its inability to rise from the ground, it is not greater than that of many other sea-birds; and it will at once be perceived that it can rise easier from a solid surface than from a fluid one. Yet the solan goose has every day to rise a hundred times from the water, into which it has plunged in pursuit of its prey. This it indeed does with much apparent difficulty, proceeding at first at an angle of about two degrees or less, so that from the place where it commences its first attempt to that where it gets disengaged from the water, it leaves a line of foam several feet in length.

THE SKUA GULL.

The bill of all the gulls is strong, straight, and slightly hooked at the point. On the under part of the lower mandible there is an angular prominence. The nostrils are oblong and narrow, placed in the middle of the bill; and the tongue is somewhat cloven; the legs are short and naked above the knees; and the back toe is small.

The skua gull is nearly two feet in length, and weighs about three pounds. Its bill is two inches and a quarter long, hooked at the end and very sharp; and the upper mandible is covered more than half way down, with a black cere or skin, as in the hawk kind. The feathers of the upper parts of the body are of a deep brown, but below they are somewhat of a rust colour. The talons are black, strong, and crooked.

The skua gull inhabits Norway, the Faroe islands, and other parts of the north of Europe. It is the most formidable bird of the tribe, its prey being not only fish, but—what is wonderful in a web-footed bird—all the lesser sorts of water-fowl. Mr Schroter, a surgeon of the Faroe islands, says they feed even on ducks, poultry, and young lambs.

This gull has the fierceness of the eagle in defending its offspring. When the inhabitants of those islands visit the nest, it attacks them with such force, that, if they hold a knife perpendicularly over their heads, the gull will sometimes transfix itself upon it, in descending to take revenge on the plunderers. The Rev Mr Lowe, minister of Birsa, in Orkney, informs us, that on his approaching the habitations of these birds, they assailed him, and the company along with him, in the most violent manner; and intimidated a bold dog in such a way as to drive him from the protection of his master. The natives are often very rudely treated by them, while they are attending their cattle on the hills; and they are frequently obliged to guard their heads by holding up their sticks, on which—in the manner mentioned above, the birds often kill themselves.

In Foula, the skua gulls are privileged, being said to defend the flocks from the attacks of the eagle, which they beat off and pursue with great fury; so that even that rapacious bird seldom ventures to approach the places which they inhabit. The natives of Foula, on this account, impose a fine upon any person who destroys one of these useful defenders: and deny that they ever injure their flocks or poultry, imagining them to live only on the dung of the arctic gull and other larger birds.

This fierce species is met with by navigators in the high latitudes of both hemispheres, where they are much more common than in the warm or temperate parts of the globe. In Captain Cook's voyages round the world, they are often mentioned; and, from their being numerous about the Falkland islands, the seamen call them Port-Egmont hens.

THE ARCTIC GULL.

The length of this species is twenty-one inches; the bill is dusky, about an inch and a half long, pretty much hooked at the end, but the straight part is covered with a sort of cere. The nostrils are narrow, and placed near the end of the bill. In the male the crown of the head is black: the back, wings, and tail dusky, the whole under part of the body white. The female is entirely brown; but of a much paler colour below than above:

the feathers in the middle of the tail only two inches longer than the others.

This bird pursues other gulls for the purpose of robbing them of their prey. It is pretty common in the northern parts of Europe, Asia, and America. Numbers of them frequent the Hebrides in the breeding season, which is from May till August. The female makes her nest of moss on the dry grassy tufts in boggy places, and lays two eggs of an ash colour, spotted with black.

Mr Drosier, in his ornithological visit to Orkney, says, "the traveller is often amused by the strenuous and hawk-like actions of the Arctic gulls, that sometimes pitch *sans cérémonie* upon a wandering kittiwake, with such rapacious ferocity, that both fall entangled into the very surface of the water; when the kittiwake, for the purpose of disengaging himself from his adversary, alights for a moment on the billows, and, lightly gliding over the tops of the rolling sea, with that buoyant elegance so peculiar to the gull tribe, he is safe. At such times the Arctic gull wheels a short flight in an opposite direction, as if intending to leave his intimidated victim, which the kittiwake perceiving, he thinks a fair opportunity is afforded for making his escape; but no sooner does he trust himself once more upon his wing than the aquatic falcon, suddenly returning, skims the surface of the billows with the rapidity of an arrow, and quickly coming up with the kittiwake, generally forces him to disgorge his half-digested fish, which the plunderer catches for himself ere it reaches the water."

THE COMMON GULL.

The common gull generally measures between sixteen and seventeen inches in length, thirty-six and sometimes more in breadth, and weighs about one pound. The bill is pale yellow, tinged with green, and an inch and three quarters long; irides hazel; edges of the eyelids red: the upper part of the head and cheeks, and the back part of the neck are streaked with dusky spots: the back scapulars and wings are of a fine pale bluish gray; the throat, rump, and all the under parts pure white; the first two quills are black, with a pretty large spot of white at

their tips, the next four are tipped with black, and the secondaries largely with white ; the legs are greenish or dirty white.

This species breeds on rocky cliffs ; and lays two eggs nearly the size of that of a hen, of an olive-brown colour, marked with dark reddish blotches, or irregular spots. Some persons who live near the coast eat this bird, as well as various other species of gulls, which they describe as good food when they have undergone a certain sweetening process before cooking, such as burying them in fresh mould for a day, or washing them in vinegar.

Mr Scott, of Benholm, near Montrose, many years ago caught a sea-gull, whose wings he cut, and put it into a walled garden, for the purpose of destroying slugs, of which these birds are very fond. It thrived remarkably well in this situation, and remained about the place for several years. The servants were much attached to this animal, and it became so familiar, that it came at their call to the kitchen door to be fed : and answered to the name of Willie. At length it became so domesticated, that no pains were taken to keep its wings cut ; and having at last acquired their full plume, it flew away and joined the other gulls on the beach ; and occasionally paid a visit to its old quarters. At the time the gulls annually leave that part of the coast, Willie also took his departure along with them, to the no small regret of the family, who were much attached to him. Next season, however, Willie again made his appearance, and visited the delighted family of Mr Scott with his wonted familiarity. They took care to feed him well, to induce him if possible to become a permanent resident. But all would not do, for he annually left Benholm. This practice he regularly continued, for the extraordinary length of *forty years*, without intermission, and seemed to have much pleasure in this friendly intercourse. While he remained on that part of the coast, he usually paid daily visits to his friends at Benholm, answered to his name, and even fed out of their hands.

One year the gulls appeared on the coast, at their ordinary time, but Willie did not, as was usual, pay his respects immediately on reaching that neighbourhood, from which they concluded that their favourite visitant was numbered with the dead, which caused them much sorrow. About ten days after, during breakfast, a servant entered the room exclaiming that Willie had returned. The overjoyed family, one and all of them ran out to

welcome Willie; an abundant supply of food was set before him, and he partook of it with his former frankness, and was as tame as a domestic fowl. In about two years afterwards, this bird disappeared for ever. The above fact is confirmatory of the great age which the gull has been said to attain.

The common-sea gull is very voracious: two of these birds, which run in the grounds of our friend General Ramsay, at Canterbury, devoured in one day fourteen mice and two rats; and one of them lately swallowed a very large rat, *whole*. The bird made several efforts to gorge the animal, and at length succeeded, to the astonishment of the by-standers; the tail was visible for several minutes.

THE BLACK HEADED GULL.

This pretty looking bird measures fifteen inches in length, and thirty-six in breadth, and weighs about ten ounces. The head is black, but in some individuals inclining to a mouse-coloured brown; the back and wings are of a delicate pale lead, or ash-colour; the neck, tail, and all the under parts pure white.

The black headed gulls breed on the marshy edges of rivers, lakes, and fens, in the interior parts of the country. The female makes her nest among the reeds and bushes, of heath and dried grass, and lays three or four eggs of an olive-brown colour, blotched all over with spots and streaks of dull rusty red. As soon as the young ones are able to accompany them, they all retire from those places, and return to the sea.

In former times these birds were looked upon as valuable property, by the owners of several fens and marshes in this country, who every autumn caused the little islets, in these wastes, to be cleared of the reeds and rushes, in order properly to prepare the spots for the reception of the old birds in the spring, to which places at that season they regularly returned in great flocks to breed. The young ones were then highly esteemed as excellent eating, and were caught in great numbers before they were able to fly. Six, or even seven men, equipped for this business, waded through the pools, and with long staves drove them to the land, against nets placed upon the shore of

those hafts, where they were easily caught by the hand, and put into pens ready prepared for their reception. The gentry assembled from all parts to see the sport. Dr Plot, in his *Natural History of Staffordshire*, published in 1686, says, that in the manner above described, as many have been caught in one morning as produced the sum of twelve pounds ten shillings; and at that time they sold for five shillings a dozen. He states, that in the several drifts on the few days of this sport, they have been taken in some years in such abundance, that their value, according to the above rate, was from thirty to sixty pounds,—a great sum in those days. These are the *sea-gulls* of which we read as being so plentifully provided at the great feasts of the ancient nobility and bishops of this realm. Although the flesh of these birds is not now esteemed as a dainty, and they are seldom sought after as an article of food, yet in the breeding season, when accommodation and protection are afforded them, they still regularly resort to the same old haunts, which have been occupied by their kind for a long time past.

Dr Plot describes them as coming annually “to certain pools on the estate of the right worshipful Sir Charles Skrymsher, knight, to build and breed, and to no other estate but that of this family, in or near the county, to which they have belonged beyond the memory of man, and never moved from it, though they have changed their station often.” What the Doctor relates of the attachment of these birds to the head of that family, of their removal to another spot immediately on his death, and of their returning again with the same predilection to his heir, is curious enough, although bordering very much upon the marvellous. Willoughby gives very nearly the same account, and computes the sale of the birds at twenty-five pounds per annum.

THE STORMY PETREL.

This bird is of a black colour; its legs are long, and its body about the size of that of a swallow. It is particularly described in the notes to Goldsmith, so that we shall content ourselves with quoting Mr Drosier’s interesting account of the mode of capturing it, as performed under his own eye, in one of the islands of the Hebrides.

"As the stormy petrel," says he, "is scarcely ever to be seen near the land, except in very boisterous weather, one of the natives (of Foula), for a trifling remuneration, agreed to traverse the face of a rock, and take me some from out its fissures. Accordingly, accoutred with a rope of hemp and hogs'-bristles coiled over his shoulders, he proceeded to the cliff. Having made one end fast by means of a stake, he threw the coil over the face of the rock, and gradually lowered himself down, but with the utmost caution and circumspection, carefully pressing his foot hard upon the narrow ridges before he at all loosened his firm grasp of the rope, which he never altogether abandoned. I had previously thrown myself upon my chest, to enable me to have a better view of him, by looking over the cliff; and, certainly, to see the dexterity and bravery with which he threw himself from one aperture to another, was truly grand. The tumbling roar of the Atlantic was foaming many hundreds of feet beneath, and dashing its curling cream-like surge against the dark base of the cliff, in sheets of the most beautiful white; while the herring and black-backed gulls, alternately sweeping past him so as to be almost in reach of his arm, threw a wildness into the scene, by the discordant scream of the former, and the laughing, oft-repeated bark of the latter. This, however, he appeared entirely to disregard; and continuing his search, returned in about half an hour, with seven or eight of the stormy petrels, tied up in an old stocking, and a pair of the Manks puffins, together with their eggs. The birds, he told me, he had no difficulty in capturing. The eggs of the stormy petrel are surprisingly large, considering the diminutive size of the bird, being as large as those of the thrush. The female lays two eggs, of a dirty or dingy white, encircled at the larger end by a ring of fine rust-coloured freckles. The birds merely collect a few pieces of dried grass, with a feather or two, barely sufficient to prevent the eggs from rolling or moving on the rock."

THE BLUE PETREL.

This bird is double the size of the preceding. It is found in New Zealand. These, along with all the species, have the

singular faculty of spurting a quantity of oily stuff through their nostrils, upon those who attack their nests or otherwise annoy them; and fowlers, who clamber up rocks for this purpose, if not on their guard, are often in this manner suddenly blinded by the birds, and losing their balance, are precipitated down the cliffs.

THE PENGUIN KIND.

THE GREAT AUK.

“This species,” says Montagu, “appears to have become extremely rare on the north coast of Britain. The natives in the Orkneys informed Mr Bullock, in his tour through these islands, that one male only had made his appearance for a long time, which had regularly visited Papa Westra for several years. The female, (which the natives call the queen of the auks) was killed just before Mr Bullock’s arrival. The king or male, Mr Bullock had the pleasure of chasing for several hours, in a six-oared boat, but without being able to kill him; for though he frequently got near the bird, he was so expert in his natural element, that it appeared impossible to shoot him. The rapidity with which he pursues his course under water, was almost incredible. This bird is said to breed on St Kilda, the westernmost of the Hebrides. One of these rare birds was taken in a fresh water pond two miles from the Thames, on the estate of Sir William Clayton, in Buckinghamshire. When fed in confinement, it holds up its head, expressing its anxiety by shaking the head and neck, and uttering a gurgling noise.” It dives under water, even when a long cord is attached to its foot, with incredible swiftness.

THE PUFFIN.

This bird generally builds in the burrows of rabbits; Mr

Pennant asserts that puffins have a very great affection for their young, so much so, that when "laid hold of by the wings," (while protecting their young,) "they will give themselves the most cruel bites on any part of their body that they can reach, as if actuated by despair, and when released, instead of flying away, they will often hurry again into their burrows." Mr Bingley says, "When I was in Wales in 1801, I took several of them out of the holes that had young ones in them, for the purpose of ascertaining this fact. They bit *me* with great violence, but none of them seized on any part of their own body; a few on being released, ran into the burrows, but not always into those from whence I had taken them. If it was more easy for them to escape into the air, they did so; but if not, they ran down the slope of the hill in which their burrows were formed, and flew away. The noise they make when with their young, is a singular kind of humming, much resembling that produced by the large wheels used for the spinning of worsted. On being seized, they emitted a noise with greater violence; and from its being interrupted by their struggling to escape, it sounded not much unlike the efforts of a dumb man to speak."

"In the breeding season," says Mr Rennie, "numerous troops of them visit several places on our coasts, particularly the small island of Priestholm, near Anglesey, which might well be called puffin land, as the whole surface appears literally covered with them. Soon after their arrival in May, they prepare for breeding, and it is said, the male, contrary to the usual economy of birds, undertakes the hardest part of the labour. He begins by scraping up a hole in the sand not far from the shore; and after having got some depth he throws himself on his back, and with his powerful bill as a digger and his broad feet to remove the rubbish, he excavates a burrow with several windings and turnings, from eight to ten feet deep. He prefers, where he can find a stone, to dig under it, in order that his retreat may be more securely fortified. Whilst thus employed, the birds are so intent upon their work that they are easily caught by the hand.

"This bird, like others which burrow in similar localities, is accused of dispossessing the rabbits, the legitimate proprietors of the soil, and even of killing and devouring their young. But it would require more authentic testimony than we have yet met

with to convince us of this alleged robbery; the only apparent evidence being, that they are found burrowing *along with* rabbits in similar holes.

“ We very commonly find, in the same sand-bank, numerous perforations crowded into a small place, the work of various species of solitary bees, side by side and intermingled with those of sand-wasps; but no naturalist who has accurately observed the proceedings of these insects would conclude that they were mutual robbers, merely because he observed them going in and out of contiguous holes.

“ In some instances, we are certain that the puffin must form its own burrows. ‘ In one part of the island’ (Akaroe), says Professor Hooker, ‘ where there is a considerable quantity of rich loose mould, the puffins breed in vast numbers, forming holes three or four feet below the surface, resembling rabbit-burrows, at the bottom of which they lay a single white egg, about the size of that of a lapwing, upon the bare earth. Our people dug out about twenty of these birds, which they afterwards assured me made an excellent sea-pie.’ He elsewhere tells us that Iceland contains no indigenous quadrupeds, and he does not enumerate rabbits among the animals introduced. The climate indeed would probably be too cold for them.

“ If the puffin, however, is really a robber of rabbit-burrows, it is too formidably armed to allow of retaliation with impunity, and few birds or beasts venture to attack it in its retreat. Sometimes, however, as Jacobson tells us, the raven makes bold to offer battle; but as soon as he approaches, the puffin catches him under the throat with her beak and sticks her claws into his breast till he screams out with pain and tries to get away; but the puffin keeps fast hold of him and tumbles him about till both frequently fall into the sea, where the raven is drowned and the puffin returns in triumph to her nest. But should the raven at the first onset get hold of the puffin’s neck, he generally comes off victorious, kills the mother, and feasts on her eggs or her young.”

THE GUILLEMOT.

This bird is as large as a tame duck. They owe their secu-

rity, such as it is, to the precipitous localities which they frequent; for they are amiably unsuspicious, so much so as to have no wile in reserve, even when driven to extremity by an enemy.

The following graphic and amusing account of the localities, habits, and appearances of the sea-fowl on the coast of Gamrie, Aberdeenshire, is from the Magazine of Natural History, and may be introduced here as an appropriate recapitulation,—besides, as furnishing us with additional facts, not only regarding several of the species we have been describing, but some others.

The sea coast along the parish of Gamrie in Aberdeenshire, is one of the boldest and most interesting to be found in the kingdom: and to the mineralogist, in particular, it affords examples of the leading truths of his science in the most diversified manner, and on the most gigantic scale. The rocks, which at intervals arise in rugged majesty along the shore, are of great height, and of a most formidable appearance, and stand perpendicularly from the ocean as striking monuments of those tremendous convulsions which at different times have agitated the world which forms our present abode. Nor is their interest confined merely to the student of mineralogy; for to the ornithologist, likewise, they are attractive in no ordinary degree. They are annually resorted to by immense numbers of those birds which are properly denominated *sea-fowl*; and it is remarkable that the various tribes of which the general body is composed are most punctual with regard to the particular period at which they respectively and yearly return from the cold regions of the north, for the important and pleasing purposes of incubation. The varieties which appear in greatest numbers are the Kittiwake, (provincially *Kitty*;) the Razor-bill Auk, (provincially *Coulter*), the Guillemot, (provincially *Queet*), and, lastly, the Puffin, (provincially *Tammy norie*).* To a stranger who visits, for the first time, the scene of their vernal abode, the spectacle presented is striking and interesting in no ordinary degree. On the various portions of the immense rocks, which rise in sublime magnificence before him, sit thousands and tens of thousands of

* The provincial names here given are those used by the inhabitants of the coast in question.

the birds to which we are now directing our attention. And it is curious to observe the regularity with which the different species attach themselves to the places most suited to their various wants and capacities. The kittiwakes and guillemots inhabit the firmest and most precipitous of the rocks, on the ledges of which they form their nests. These ledges, when viewed from below, appear to the spectator as scarcely presenting an inch's breadth of surface, and yet the birds contrive to form their nests, which, in case of the kittiwake, is done with grass, and to hatch their young in this seemingly impracticable situation; although it sometimes indeed happens, that, on being suddenly startled, their eggs tumble down into the sea. Although associated together, however, no actual intermixture takes place between the two species; for they have each their own particular ledges on which they sit, drawn up like regiments of soldiers, in the most imperturbable manner, and if startled by a more than ordinary alarm from their nests, they nevertheless return after a single evolution of the air, to the important duties from which they had been with difficulty aroused. The two species are easily distinguishable. The kittiwake is at once conspicuous by its snow-white head and breast, its yellowish bill, and its pearly blue mantle; while the guillemot is recognised by its upright figure, the legs being placed very far back, as is the case with most sea fowl, and by the great portion of brownish sleek black with which its plumage is diversified. The peculiar nature, indeed, of the configuration of this latter bird, by which, when sitting or attempting to walk, its whole leg appears as if it were its foot, has given rise to the popular but erroneous idea that it hatches its eggs by means of covering it with the part of its body in question. On a promontory immediately adjoining, and composed of softer materials, are assembled the puffins, or, in the language of this part of the country, the Tammy nories, who laying their eggs in holes burrowed in the earth, cannot, of course, take up their abode on the hard ledges occupied by the birds whose position we have already described. In the same manner the Razor-bills, although occasionally associating with the guillemot, occupy, in general, a separate and somewhat soft and perforated part of those enormous precipices, which, in the busy season of spring, teem with life in all directions. These birds (the razor-bills) very much resemble the guillemots in appearance, espe-

cially when seen at a distance on wing. They may, however, on a nearer approach, be distinguished from the latter by the broad form of their bills, and by the superior length of their wings, which are, moreover, marked by a conspicuous streak of white along their outward extremity.

Some of this enormous body of sea fowl (probably males) are constantly in motion, either gracefully and lightly swimming about in detached groups on the sea, or, by their circular evolutions in the air, indicating to the yet distant visitor the particular rock where he may hope to encounter them in congregated thousands. And on a fine day, and under the mild influence of a vernal and unclouded sun, the scene is particularly beautiful. The ocean lies tranquil, and stretched out before the spectator like an immense sheet of glass, smiling in its soft and azure beauty, while over its surface the kittiwake, the guillemot, the razor-bill, and the puffin, conspicuous by the brilliant orange and scarlet of its bill and legs, are beheld wheeling with rapid wing in endless and varying directions. On firing a gun, the effect is even startling. The air is immediately darkened with the multitudes which are aroused by the report; the ear is stunned by the varied and discordant sounds which arise; the piercing note of the kittiwake (from which its name has been derived); the shrill cry of the tammy norie; and the hoarse burst of the guillemot, resembling, as it were, the laugh of some demon, in mockery of the intrusion of man amid these majestic scenes of nature; all these combined, and mingled occasionally with the harsh scream of the cormorant, are heard high above the roar of the ocean which breaks at the foot of these tremendous and gigantic precipices.

It is a remark which cannot be too frequently nor forcibly repeated, that, in natural history especially, it is of the utmost importance to judge from actual observation and experience, and not implicitly to rely on the descriptions and speculations of writers who are often obliged to describe productions of nature which they have never had an opportunity of beholding, and with regard to which they have not unfrequently relied on information at best but vague and unsatisfactory. This is particularly the case with Buffon. There is no author more likely, from the insidious and specious graces of his eloquence, to captivate and influence the youthful mind; and yet, in those branches of

natural history to which my own observation extends, I have often, with regard to a correct statement of facts, found him egregiously deficient. And the truth of this remark I am in no case able to substantiate more fully, than with respect to the varieties of sea fowl at present under consideration. I find from his writings, then, that he represents the razor-bill auk as utterly incapable of flight, and the puffin as enabled with the utmost difficulty to transport itself from one place to another, by raising, as it were, with its almost useless wings, the surface of the sea ; and, in like manner, the guillemot is described as being scarcely able to fly above the surface of the sea, and, in order to reach its nest, as being obliged to flutter, or rather to leap, from cliff to cliff, resting a moment at each throw. These errors I do not find corrected, except in the case of the puffin, by Bewick, and other subsequent and popular naturalists, who must, I should think, have known better, and which ought to have been at pains to rectify the blunders of an author so captivating and universally read as Buffon. Now, I have myself been repeatedly a witness, at one of their greatest breeding stations, of the powers of flight possessed by those birds who have thus been confidently represented as being incapable of flight at all. The fact is, that, while on the wing, they fly with singular rapidity and vigour, and often at a very considerable elevation ; nor have I been able to discover any of that difficulty in reaching their nests, which, in the case of the guillemot, is described as being so painfully great.

BIRDS OF THE GOOSE KIND.

THE HOOPING SWAN.

THIS bird inhabits the northern regions ; and seldom appears in Britain but in very hard winters, when sometimes flocks of five or six make their appearance. Martin states, that in the month of October, swans come in great numbers to Ligney, one of the Western Islands, and continue there till March, when they return northward to breed.

In Iceland, these birds are an object of chase. In the month of August they lose their feathers to such a degree, as not to be able to fly. The natives, at that season, resort in great numbers to the places where they most abound ; accompanied by dogs, and mounted on active and strong horses, trained to the sport, and capable of passing nimbly over the boggy soil and marshes. The swan will run as fast as a tolerably fleet horse. The greater number are caught by the dogs ; which are taught to seize them by the neck, a mode of attack that causes them to lose their balance, and become an easy prey.

Notwithstanding the size of these birds, they are so exceedingly swift of wing, when in full feather, as to be more difficult to shoot, than almost any others ; it being frequently necessary to aim ten or twelve feet before their bills. This, however, is only when flying before the wind in a brisk gale ; at which time they seldom proceed at the rate of less than a hundred miles in an hour ; but when flying across the wind or against it, they are not able to make any great progress.

THE TRUMPETER SWAN.

This is a new species, and the most common of the tribe, in the fur countries of North America. It breeds as far north as latitude 61° but principally within the arctic circle, and in its migrations generally precedes the goose a few days. It is from this species, that the bulk of the swan's skins imported by the Hudson's Bay Company are derived.

Lawson observes that there are two sorts of swans in Carolina the larger of which is called, from its note, the trumpeter; and Hearne adds, "I have heard them in serene evenings after sunset, making a noise not very unlike that of a French-horn, but entirely divested of every note that constituted melody, and have often been sorry that it did not forebode their death."

This bird is white, the forehead alone being tinged with reddish-orange; the bill, cere, and legs are entirely black.

THE TAME SWAN.

At Abbotsbury in Dorsetshire, there was formerly a noble swannery, the property of the Earl of Ilchester, where six or seven hundred were kept: but from the mansion being almost deserted by the family, this collection has of late years been much diminished. The royalty belonged anciently to the abbot, and previously to the dissolution of the monasteries the swans frequently amounted to more than double this number.

The following circumstance proves the great strength of the swan's bill. As a gentleman was walking about four o'clock on Sunday afternoon, the 21st October, 1827, in the Regent's park, his attention was attracted by an unusual noise on the water, which he soon ascertained to arise from a furious attack made by two white swans on the solitary black one. The allied couple pursued with the greatest ferocity, the unfortunate black swan, and one of them succeeded in getting the neck of his enemy between its bill, and shaking it violently. The poor black swan with difficulty extricated himself from the murderous grasp, hurried on shore, tottered a few paces from the water's edge, and fell.

His death appeared to be attended with great agony. He stretched his neck in the air, fluttered his wings, and attempted to rise from the ground. At length, after about five minutes of suffering, he made a last effort to rise, and fell with outstretched neck and wings. One of the keepers came up at the moment, and found the poor bird dead. It is remarkable that his foes never left the water in pursuit, but continued sailing up and down, to the spot whereon their victim fell, with every feather on end, and apparently proud of their conquest.

The swan makes its nest in the grass among reeds; and in February begins to lay, depositing an egg every other day, till there are six or eight. These occupy six weeks in hatching. Dr Latham says, he knew two females that for three or four years successively, agreed to associate, and had each a brood yearly, bringing up together about eleven young ones: they sat by turns, and never quarrelled. When in danger, the old swans carry off their offspring on their backs.

A female swan, while in the act of sitting, observed a fox swimming towards her from the opposite shore: She instantly darted into the water, and having kept him at bay for a considerable time with her wings, at last succeeded in drowning him; after which, in the sight of several persons, she returned in triumph. This circumstance took place at Pensy, in Buckinghamshire.

The Black swan. This bird, no longer a rarity, is described in the notes to Goldsmith.

THE TAME GOOSE.

In modern times it is not more on account of its excellence as an article of food than of its feathers, down and quills, that this bird is so much esteemed and bred. The quill feathers, were formerly much used for feathering arrows.

“ An English archer bent his bow,
Made of a trusty tree,—
An arrow of a cloth-yard long
Unto the head drew he.

Against Sir Hugh Montgomery
So right his shaft he set,
The Gray Goose wing that was thereon
In his heart's blood was wet."

It is universally believed, that the goose lives to a great age, and particular instances are recorded by ornithologists which confirm the fact; some are mentioned which have been kept seventy years; and Willoughby notices one which lived eighty years; and in an account of one which lately died at Paisley, it will be seen that it reached nearly the age of one hundred years. They are, however, seldom permitted to live out their natural life, being sold with the younger ones before they approach that period. The old ones are called *cagmags*, and are bought only by novices in market making.

In some countries domestic geese require much less care and attendance than those of this country. The author just mentioned, informs us, that among the villages of the Cossacks, subject to Russia, on the river Don, the geese leave their homes, in March or April, as soon as the ice breaks up, and the pairs joining each other, take flight in a body to the remote northern lakes, where they breed and constantly reside during the summer; and on the beginning of winter, the parent birds, with their multiplied young progeny, all return and divide themselves, every flock alighting at the door of the respective place to which it belongs.

The goose is no where kept in such vast quantities as in the fens of Lincolnshire; several persons there having as many as a thousand breeders. They are bred for the sake of their quills and feathers, rather than as food. They are stripped while alive, once in the year for their quills, and no less than five times for their feathers. The first plucking commences about Lady-day, for both; and the other four between Lady-day and Michaelmas. It is said, that in general the birds do not suffer very much from this operation; except cold weather sets in, which then kills great numbers of them. The old geese submit quietly to the operation; but the young ones are very noisy and unruly. Mr Pennant says, he once saw this operation performed, and observed that even goslings of only six weeks old were not spared—for their tails were plucked, as he was told, to inure them early to the custom. The possessors, except in this cruel practice,

treat their birds with great kindness, lodging them very often, even in the same room with themselves.

These geese breed in general only once a-year, but if well kept they sometimes hatch twice in a season. During their sitting each bird has a place allotted to it, in rows of wicker-pens placed one above another ; and the *gozzard* or *goose-herd*, who has the care of them, drives the whole flock to water twice a-day, and, bringing them back to their habitation, places every bird (without missing one) in its own nest.

It is scarcely credible what numbers of geese are driven from the distant counties to London for sale ; frequently two to three thousand in a drove ; and, in the year 1783, one drove passed through Chelmsford, in its way from Suffolk to London, that contained above nine thousand. In ancient times they were driven much in the same way, from the interior of Gaul to Rome.

A remarkable instance of fecundity in a goose, is recorded in the *Annals of Sporting*. In 1827, Mr Thomas Hutchinson, stone merchant at New Barn, Edinfield, near Bury, had a goose which laid eggs three several times during that year, viz. in March, twelve eggs ; in June, eight ; and began to lay again on the 19th September.

A farmer living at Quarry-House, near Counden, had a goose in 1827, that hatched a brood of goslings in May, and was sitting her second set of seven eggs, early in November ; but what may be considered somewhat remarkable is, that one of the first brood laid two eggs early in November, which were placed under the mother, while the young goose continued to lay.

However simple in appearance, or awkward in gesture the goose may be, it is not without many marks of sentiment and understanding. The courage with which it protects its young and defends it against the ravenous birds, and certain instances of attachment and even of gratitude which have been observed in it, render our general contempt of the goose ill-founded. This is strongly confirmed by an instance of warm affection, which was communicated to Buffon by a man of veracity and information. The following are nearly the words of the narrator :—
“ There were two ganders, a gray and a white one, (the latter named *Jacquot*,) with three females. The males were perpetually contending for the company of these dames. When one or

the other prevailed, it assumed the direction of them, and hindered its rival from approaching. He who was the master during the night, would not yield the next morning; and the two gallants fought so furiously, that it was necessary to be speedy in parting them. It happened one day that being drawn to the bottom of the garden by their cries, I found them with their necks entwined, striking their wings with rapidity and astonishing force: the three females turned round, as wishing to separate them, but without effect: at last the white gander was worsted, overthrown and maltreated by the other. I parted them; happily for the white one, as he would otherwise have lost his life. Then the conqueror began screaming and gabbling, and clapping his wings; and ran to join his mistresses, giving each of them a noisy salute, to which the three dames replied, ranging themselves at the same time round him. Meanwhile poor Jacquot was in a pitiable condition; and, retiring, sadly vented at a distance his doleful cries. It was several days before he recovered from his dejection; during which time I had sometimes occasion to pass through the court where he strayed. I saw him always thrust out of society, and whenever I passed, he came gabbling to me. One day he approached so near, and showed so much friendship, that I could not help caressing him, by stroking with my hand his back and neck, to which he seemed so sensible, as to follow me into the entrance of the court. Next day, as I again passed, he ran to me, and I gave him the same caresses; with which alone he was not satisfied, but seemed by his gestures, to desire that I should introduce him to his mates. I accordingly led him to their quarters, and, upon his arrival, he began his vociferations, and directly addressed the three dames, who failed not to answer him. Immediately his late victor sprung upon Jacquot. I left them for a moment; the gray one was always the stronger. I took part with my Jacquot, who was under; I set him over his rival; he was thrown; I set him up again. In this way they fought eleven minutes; and by the assistance which I gave him, he at last obtained the advantage, and got possession of the three dames. When my friend Jacquot saw himself master, he would not venture to leave his females, and therefore no longer came to me when I passed: he only gave me at a distance many tokens of friendship, shouting and clapping his wings; but would not quit his companions, lest,

perhaps his rival should take possession. Things went on in this way till the breeding season, and he never gabbled to me but at a distance. When his females, however, began to sit, he left them, and redoubled his friendship for me. One day, having followed me as far as the ice-house at the top of the park, the spot where I must necessarily part with him in pursuing my path to a wood at half a league distance, I shut him in the park. He no sooner saw himself separated from me, than he vented strange cries. However, I went on my road ; and had advanced about a third of the distance, when the noise of a heavy flight made me turn my head ; I saw my Jacquot only four paces from me. He followed me all the way, partly on foot, partly on wing ; getting before me and stopping at the cross paths to see which way I should take. Our journey lasted from ten o'clock in the morning till eight in the evening ; and my companion followed me through all the windings of the wood, without seeming to be tired. After this, he attended me every where, so as to become troublesome ; for I was not able to go to any place without his tracing my steps, so that one day he came to find me in the church. Another time, as he was passing by the rector's window, he heard me talking in the room ; and as he found the door open, he entered, climbed up stairs ; and marching in, gave a loud exclamation of joy, to the no small affright of the family.

I am sorry, in relating such interesting traits of my good and faithful friend Jacquot, when I reflect that it was myself that first dissolved the pleasing connection ; but it was necessary for me to separate him from me by force. Poor Jacquot found himself as free in the best apartments as in his own : and after several accidents of this kind, he was shut up, and I saw him no more. His inquietude lasted about a year, and he died from vexation. He was become as dry as a bit of wood, I am told ; for I would not see him ; and his death was concealed from me for more than two months after the event. Were I to recount all the friendly incidents between me and poor Jacquot, I should not for several days have done writing. He died in the third year of our friendship, aged seven years and two months."

The goose has for many ages been celebrated on account of its vigilance. The story of their saving Rome by the alarm they gave, when the Gauls were attempting the Capitol, is well known, and was probably the first time of their watchfulness be-

ing recorded ; and on that account, they were afterwards held in the highest estimation by the Roman people. It is certain that nothing can stir in the night, nor the least or most distant noise be made, without the geese being roused, and immediately beginning to hold a cackling converse ; and on the nearer approach of apprehended danger, they set up their more shrill and clamorous cries. It is on account of this property that they are esteemed by many persons as the most vigilant of all sentinels, when placed in particular situations.

An old goose that had been for a fortnight hatching in a farmer's kitchen, was perceived on a sudden to be taken violently ill. She soon after left the nest, and repaired to an out-house where there was a young goose of the first year, which she brought with her into the kitchen. The young one immediately scrambled into the old one's nest, sat, hatched, and afterwards brought up the brood. The old goose, as soon as the young one had taken her place, sat down by the side of the nest, and shortly after died. As the young goose had never been in the habit of entering the kitchen before, " I know of no way of accounting for this fact," says Mr Brew, of Ennis, the narrator, " than by supposing that the old one had some way of communicating her thoughts and anxieties, which the other was perfectly able to understand. A sister of mine who witnessed the transaction gave me the information in the evening of the very day it happened."

We are informed, in Loudon's Magazine of Natural History, that in the year 1828, thirty domestic geese deserted the pond of a lady in Aberdeenshire, without any cause being known for this uncommon occurrence. A gentleman happened to see them in their flight seaward ; and they were never afterwards heard of.

" Who of our good townsmen," says the editor of that *particularly* well conducted paper the Paisley Advertiser !! " has not seen, or at least heard of the loyal goose of Paisley—the chivalrous and warlike goose of the years 1819 and 1820 ? In these years during the radical turmoils in this neighbourhood, this strange and venerable bird attracted universal attention by its devoted affection to the soldiery, and its aptitude and vigilance in walking sentry before the jail. Of its previous history we know little, save that he had been an inmate of the Saracen's Head

inn for upwards of twenty years before ; and had, till the year 1819, comported itself like a grave and well ordered member of its own species. In a heavy speat, (flood) one winter twenty years ago, it had come floating down the Cart floundering in the rush of waters, and cackling lustily in the storm. Whence it came, or where, and when born, remains matter of mystery and conjecture to this day. (1st Sept. 1827.) Certain it is, the adventurous voyager was stranded at the foot of the Dyers Wynd, and being there seized by some of the minor authorities of the town, as a waiff or a wreck, was forthwith lodged in the town's inn, as a victim to be immolated at the next Christmas, or first civic feast. But age secured it from the vulgar indignity of being eaten. The cook declared it was too old by half a-century, and that nothing but an ostrich-stomach could digest its iron frame ; and after her judgment had been confirmed by other authorities skilled in gastronomic science, it was dismissed, and allowed the full and uncontrolled walk of the stable-yard. Here it vegetated till 1819, being handed over to each successive host of the Saracen's head, to the next tenant, as a part and portion of the premises. In the eventful years 1819 and 1820, it gave its first indications of attachment to a military life. The sight of a red coat and musket were attractions it could not resist, and the roll of the drum or bugle call was sure to find a willing listner in this plumaged hero. Every day, for many months in these years, it was seen parading, slowly and stately, with measured waddle before the jail, following closely the heels of the sentinel, stopping when he stopped, and pacing when he paced. Night and day, this loyal bird was found at its post. When it slept, none could tell—its vigils were unremitting—and often have we seen the soldier share his brown loaf with this new brother in arms. Thus did it continue in the faithful and constant discharge of its military duties so long as a red coat and musket gleamed before the jail. From these singular habits, it became as well known to our townsmen as their cross steeple,—and often formed the topic of their conversation. It was revered as if it had been one of the sacred brood which preserved the capitol. When sentinels were discontinued, the goose still paced over its old haunt, in sullen majesty, dreaming of other and more turbulent days, and glorying in the recollection of how itself had stood, in the front of danger, unappalled and firm in its unshaken loyalty

to the Crown and constitution. At length it forsook this station, finding its services there no longer useful, and speedily associated itself to the serjeant or corporal of each succeeding recruiting party that came to town. At the heels of some serjeant, who, morning and evening, wore out his shoes on the flags for lack of other employment, the goose was found acting as orderly, keeping behind him at the distance, as nearly as one could guess, of 'three paces and a stride.' When one serjeant left the town, the goose soon ingratiated itself with his successors: and when knots of these gentlemen assembled on the street, the goose was ever found in dignified silence, thrusting his neck between their legs, and with elevated crest, listening to their councils of war, and stories of battles won in distant lands. Besides this, it paid stated visits to sundry individuals whom it had favoured with its friendship. It could not chat; but it bade them good morning with a most affectionate gabble. When soldiers had to be billeted, by a species of prescience almost unaccountable, it waddled with friendly eagerness to the door of the Chamberlain's office, and there walked to and fro till the billets were distributed. To horse and foot—to regular and volunteer corps—it was alike kind and attentive. Whoever wore graciously his majesty's uniform was sure to be recognised by this singular bird. Many a time have we seen a military officer, if he chanced to walk near the cross, start, when he found the goose dogging him as diligently as if it were his shadow. To men in authority he showed a becoming deference, and even condescended, occasionally to pick up a slight acquaintance with the subordinate officers of justice, choosing, however, those most remarkable for their size as especial favourites. For the last year, it was evident to the eyes of all, that our feathered eccentric was fast sinking under age, and its accompanying infirmities. It had become almost blind, and very lame. Its drumsticks were overgrown with knotty excrescences, and many of its toes had been broken off by its previous campaigning, while the lustre of its once snowy plumage was irretrievably gone. Yet to the last it continued to *hirple* over its wonted haunts, and to visit its early friends. When age-worn nature refused longer to obey the impulses of its heroic spirit, it shook off the burden of a life no more of use, in the fulness of its age, with a feeble sibilation, and a slight flutter of its wings, on Tuesday morning last, (the

28th August, 1827,) in the stable yard of the Saracen's head inn. Many who, like the writer, have under the weight of a musket, been amused by observing the habits of this bird, and found it his sole companion in the dreary watch at night, will regret its death, and sympathize in the feeling, under which this slight piece of animal biography has been penned. The death of this feathered Nestor, it is not abusing the term to say, has created a general sensation in the town, nay, even general regret. Its age has been variously computed, but most are of opinion, that at the time of its death, it must have been within a few years of a hundred."

"It is not uncommon for domestic geese to take flights to a considerable distance. Some time ago, my father had a large flock, which fed on high ground not visible from the house. They were lessened, as occasion required, to about six; these were piloted home every night for some weeks; and very frequently, on seeing the house from the top of the hill, they would take wing and fly homewards, making a circuit of about a mile. On one occasion they were nearly alighting at a pond of water at the next farm-house, instead of a similar one near home; they soon, however, discovered their mistake, and raised themselves in the air to nearly as great a height as before, alighted at their own water, and were at it long before their driver, notwithstanding that the latter mostly ran in a direct line. This is the more singular because these geese were considered *heavy* and *fat*, and nearly ready for making into good old-fashioned goose-pie."*

"On visiting a friend at Titten-hanger green the other day," says a correspondent in the Natural History Magazine, "I was again surprised at seeing a flock of fifteen or twenty geese get up and fly tolerably well for nearly four hundred yards, pass a hedge, and alight on the borders of a pond."

Cuvier published a brief description of a bird produced between a swan and a goose, which in fact amounts to its being a perfect goose, in every thing but size, like its mother, which it greatly exceeds.

"The following story, the truth of which we can vouch for," says the Editor of the Dumfries Courier, "is not only curious

* Loudon's Mag. of Nat. Hist. vol. ii. p. 65.

in itself, but evinces pretty forcibly, that whimsicality and eccentricity are not confined to the human species. Mr Whigham, of Allanton, has a very large gander, which was hatched five or six years ago, which had scarcely attained the *months* of majority, when he contracted a dislike to his own species. Whether this arose from disappointed love, or a disposition naturally *goose-anthropical*, might puzzle the deepest naturalist to determine; but certain it is, that he feels so little pleasure in the society who have feathers on their backs, that the race would speedily become extinct, were all Ganders as ungallant as himself. In 1823, there were two pretty bay colts grazing in a field adjoining to Allanton, and to these he in time attached himself so cordially, that he became their companion night and day. From this, or some other circumstance, he retains a strong partiality to bays and browns, and will not associate with a black horse. The colts alluded to, were succeeded by others; and the gander, though he seemed sensible of, and sorry for the change, speedily ingratiated himself with his new friends. These he attends in the paddock during the day, follows them home at night when the weather is cold, and if accidentally shut out of the stable, patiently bivouacs behind the door, and is always ready to clap his wings, and go afield early in the morning. When in the park, his sole occupation seems to be to stand near the head of one of the colts, carefully watching all its motions, and accommodating his position to that of his friend, by waddling when he walks, and flying when he runs. Young horses, when disturbed, very easily break into a gallop, and as the gander manages to keep so near the colt, that he may be seen flying vigorously along side of him, it is certainly strange that it never occurred to him to take a ride. If the mouth of the other, while collecting provender, should come too near his feet, he stretches forth his neck, elevates his wings, hisses gently, and by other motions, admonishes the intruder to keep at a proper distance. Though geese graze as well as kine, the bird in question is rarely seen nibbling a pile of grass, and his chief dependence, we believe, is placed on the stray pickles of corn he caters in the stable. On one occasion, the young horses at Allanton were removed to a field at some distance, and then the poor gander had to *dree* a very dreary period of widowhood. If he could have spoken or sung, his ditty would have been, ‘ I wander dowie a’ mv lane ;’ but when

the colts returned, that is the bay ones, he was seen hurrying to meet them, half running half flying, and cackling forth his congratulations, to the very topmost note of the gamut of joy. In April last, 1827, we happened to be at Allanton, and, as a matter of course, visited the biped of whose eccentric habits we had heard so much. A new scene then presented itself. In the course of the day, a score or two of capital Highland bullocks had been let into the field, and these the gander seemed to look on with a very jaundiced eye. By mere accident, one of them approached too near the favourite colt, an intrusion which was resented by a fierce and rather laughable onset. The bill of the bird was darted at the hard head of the enemy, and the latter, though furnished with a notable pair of horns, started back as quickly as if an adder had stung him. Again, however, he advanced to the charge, was again assaulted, and again retreated; until his brethren, perceiving what was going forward, joined in the *melée*, and very nearly hemmed the gander in. Our first impression was, that the biped would be tossed and gored till not a pinion stuck together, but in this we were mistaken. Each of the bullocks was assailed in turn, to its no small amazement, if not dismay, but the assailant, maugre his great courage, appeared to be placed in a sad quandary, and did all he could to rescue the colt from such unsuitable company, by biting his heels, and nibbling at his head. The docile animal, at length, good-naturedly yielded to his wishes, and the horned belligerents, on their part, ratified the armistice, by offering no farther molestation."

THE CANADA GOOSE.

At East Barnet in Hertfordshire, some years ago, a gentleman had a Canadian goose, which attached itself in the most affectionate manner to the house-dog, but never attempted to enter his kennel, except in rainy weather. Whenever the dog barked, the goose set up a loud cackling, and ran at the person she supposed the dog barked at, and would bite at his heels. She was exceedingly anxious to be on the most familiar terms with her canine friend, and sometimes attempted to eat along with him,

which, however, he would not suffer, nor indeed did he manifest the same friendship towards the goose, which it did towards him, treating it rather with indifference. This creature would never go to roost with the others at night, unless driven by main force ; and when in the morning they were turned into the field, she refused to go thither, and bent her course towards the yard gate, where she sat all day watching the dog. The proprietor at length finding it in vain to attempt keeping these animals apart, gave orders that the goose should be no longer interfered with, but left entirely to the freedom of her own will. Being thus left at liberty to pursue her own inclinations, she ran about the yard with him all night, and when the dog went to the village, she never failed to accompany him, and contrived to keep pace with his more rapid movements, by the assistance of her wings, and in this way betwixt running and flying, accompanied him all over the parish. This extraordinary affection is supposed to have originated in the dog having rescued her from a fox, in the very moment of distress. It continued for two years, and only terminated with the death of the goose.

When the dog was ill, the goose never quitted him day or night, not even to feed. She seemed quite aware of his sickness, and it was apprehended she would have been starved to death, had not a pan of corn been placed every day close to the kennel. During his illness, the goose always sat in the kennel, and would not suffer any one to approach it, but the person who brought the dog's or her own food. The dog at length died, and the end of this faithful bird was melancholy ; for she still kept possession of the kennel ; and a new house dog being introduced, which much resembled the former, both in size and colour, the poor goose was in consequence unhappily deceived, and entering the kennel as usual, the new inhabitant seized her by the throat and killed her.

CAPE GEESE.

The Cape geese, which are kept in Windsor Great-Park ponds, used to breed on the island in one of these. In consequence,

however, of their eggs having been frequently destroyed by rats, they took to building in some large oak pollards near the water, from whence they conveyed their young in safety. It is difficult to say in what way those birds remove their young from these elevated situations. Some of the Park keepers say that the geese take them under their wings, and thus descend the tree, but we think it more probable that they carry them one by one in their bills.

CHINA GOOSE.

In the Supplement to Montagu's Ornithological Dictionary, the following singular circumstance is related. A pointer-dog had killed a male China goose. The dog was most severely punished for the misdemeanour, and had the dead bird tied to his neck. The solitary female became extremely distressed for the loss of her partner and only companion; and, probably having been attracted to the dog's kennel by the sight of her dead mate, she seemed determined to persecute the dog by her constant attendance and continual vociferations; but after a little time, a strict friendship took place between these incongruous animals; they fed out of the same trough, lived under the same roof, and in the same straw bed kept each other warm, and when the dog was taken to the field, the lamentations of the goose were incessant.

EGYPTIAN GEESE. On the second week of September, 1832, Mr Greenhow, surgeon of North Shields, mentions that a flock of Egyptian geese was seen beside the Tweed, at Carham, two of which, while nibbling grass on the margin of the river, were shot by Ralph Stephenson, a gamekeeper of that neighbourhood.

THE DUCK, AND ITS VARIETIES.

THE TAME DUCK.

THIS valuable species owes its origin to the Mallard or wild duck, but has long been reclaimed from a state of nature. Many of them have nearly the same plumage as the wild ones ; others vary greatly from them both in plumage and size. They are to be found of all colours ; but the drakes still retain the unvarying marks of their wild original, in the curled feathers of the tail. In a wild state they pair and are monogamous, but become polygamous when tame.

Buffon says, “ man made a double conquest when he subdued the inhabitants at once of the air and the water. Free in both those elements, equally fitted to roam in regions of the atmosphere, to glide through the ocean, or plunge under its billows, the aquatic birds seemed destined by nature to live for ever remote from society and from the limits of our dominion. Eggs taken from the reeds and rushes amidst the water, and set under an adopted mother, first produced in our farm-yards wild, shy, fugitive birds, perpetually roving and unsettled, and impatient to regain the abodes of liberty. These, however, after they had bred and reared their own young in the domestic asylum, became attached to the spot ; and their descendants, in process of time, grew more and more gentle and tractable, till at last they appear to have nearly relinquished and forgotten the prerogatives of the savage state, although they still retain a strong propensity to roam abroad, in search, no doubt, of the larger pools, marshy

places, and bogs, which it is natural to suppose they prefer to the beaten, hard, pebbly-covered surface surrounding the scantily watered hamlet : and indeed it is well known to every observing good housewife, that when they are long confined to such dry places, they degenerate both in strength and beauty, and lose much of the fine flavour of those which are reared in spots more congenial to their nature. That these and such like watery places, which their health requires for them to wash, dive, feed, rest, and sport in, are not better tenanted by these useful and pretty birds, is much to be regretted, and marks strongly a falling off, a want of industry in those females to whose lot it falls, and whose duty it is to contribute their quota of attention to those lesser but essential branches of rural economy."

When ducks, with other kinds of fowl, are busily employed in picking up the waste about the barn door, they greatly enliven the rural scene, as depicted by our poet Allan Ramsay.

"A snug thack house, before the door a green,
Hens on the middings, ducks in dubs are seen :
On this side stands a barn, on that a byre ;
A peat-stack joins, and forms a rural square."

"We have been assured," says Montagu, "by a person of undoubted veracity, that a half domesticated duck made a nest in Rumford Tower, hatched her young, and brought them in safety to a piece of water at a considerable distance. Others have been known to breed on trees ; and we recollect the nest of this bird being found in the head of an old pollard willow impending over the water, from whence the young might readily drop unhurt into their natural element." Mr Tunstall, says Professor Rennie, mentions one at Etchingham, in Sussex, which was found sitting upon nine eggs, on an oak twenty five feet from the ground. Daniel, in his rural sports, mentions an instance of one taking possession of the nest of a hawk in a large oak.

Mr Andrew Shortrede informs us, that he remembers on his father's farm of Monklaw, near Jedburgh, a duck, which in the spring laid black eggs. As the season advanced, the blackness gradually went off, till, at the end of Autumn, the eggs were whiter than those of an ordinary duck. This duck was rather beyond the usual size.

On the same farm there was another duck, which laid two eggs a day. This fact was proved by locking the bird up, when one egg was found early in the morning, and another in the evening. This remarkable duck was killed by a servant ignorant of its virtues.

The following curious fact is related by Professor Scarpa.—A duck accustomed to feed out of its owner's hand, was once offered some perfumed bread, which it at first refused to take. After several attempts, however, it at length complied; took the bread in its bill, and, carrying it to a neighbouring pond, moved it in various directions, as if to wash away the disagreeable taste and smell, and then swallowed it.

Mr Saul says, "I have now a fine duck, which was hatched under a hen in the spring of 1828, there being seven young ones produced at the time. When these ducks were about ten days old, five of them were taken away from beneath the hen by the rats during the night time, the rats sucking them to death, and leaving the body perfect. My duck, which escaped this danger, now alarms all the other ducks and fowls, in a most extraordinary manner, as soon as the rats appear in the building in which they are confined, whether it be in the night or in the morning. I was awoken by this duck last spring, about midnight; and, as I apprehended the rats were making an attack, I got up immediately, went to the building and found the ducks uninjured. I then returned to bed again, supposing the rats had retreated. To my surprise next morning, I found that ten young ducks had been taken from beneath a hen, and sucked to death at a very short distance from where the duck was sitting. On this account I got a young rat-dog, and kept it in the building; and, when the rats approach, the duck will actually rouse the dog from sleep, and as soon as the dog starts up, the duck becomes settled again."

That the duck is capable of performing long migrations, and over a considerable extent of ocean, is proved by the following singular fact, which is mentioned in the *Natural History of Selborne*, by Mr White. "As some people, (says he,) were shooting in the parish of Trotton, in the county of Sussex, they killed a duck in that dreadful winter of 1708-9, with a silver collar about its neck, on which were engraven the arms of the King of Denmark. This anecdote the Rector of Trotton at that time

has often told to a near relation of mine; and, to the best of my remembrance, the collar was in the possession of the rector."

In the neighbourhood of Northam, Herts, there is a domestic duck, which flies with the same power, and at the same height as a crow; or rather I should say, in the same way as if it were wild. I saw her crossing the road yesterday, and for some time was lost in wonder what strange bird it could be. The people of the village, however, soon answered my inquiry, and assured me that this duck would often make the circuit of a mile. The weakness of flight in domesticated birds is, no doubt, occasioned by the little or no use that is made of their wings. It would be curious to ascertain what first taught this duck to know that he could fly whenever he chose.*

The Mallard. This bird, the original stock of our domestic duck, is very well known, and frequents fresh water lakes. It is rarely seen in salt water. A particular description of this and the other species of wild ducks is given in the notes to Goldsmith. We shall briefly mention them here.

In June 1822, at Yarmouth, a rat was discovered in the crop of a wild duck, in a perfect state, and measured, from the tip of the nose to the end of the tail, fourteen inches, girth six inches, and weighed seven ounces and a half,

Mr Jesse mentions an instance of a wild duck, which had its nest in a poplar tree, which overhangs a piece of water in Staffordshire, from whence she contrived to convey her young in safety.

The Velvet duck. This bird is found in Europe and South America. The bill of the male is gibbous or convex at the base, a peculiarity which is wanting in the female.

The Scaup duck, is found in Europe, Northern Asia, and America, and is migratory in winter.

The Shieldrake, inhabits northern countries as far as Iceland. It exerts ingenuity similar to that of the partridge and lapwing, when its young are in danger.

The Long-tailed duck. The tail of this species is long and terminates in a point. They are found in Europe, Asia, and America.

The Golden Eye. This bird is most abundant in Italy, and

* Loudon's Mag. Nat. Hist. i. p. 377.

though its plumage is very beautiful its flesh is rank and disagreeable.

The Eider duck. This bird is a summer visitant in Europe and America. It is much esteemed for its down, which is so fine and at the same time so elastic as to be capable of wonderful extremes of diminution and extension. One poet, and only one, we believe, has availed himself of it. He speaks of

“Turf that is soft as the eider-bird’s wing.”

It would be difficult to point out a more luxurious simile. This bird is about twice the size of the common duck.

The method employed to decoy wild ducks, by means of tame ones, into snares set for them, is amusingly described by Goldsmith, and exhibits the capabilities of these birds in a striking point of view.

THE KING-FISHER.

OF this genus there are many species—but we shall confine our account to the common king-fisher, which is indigenous in Britain. Though the superstitions regarding this bird have ceased to influence the belief of any one—yet they still remain as delightful fancies. The Romans had their *halcedonia*, halcyon days, or days of calm, so called in allusion to the mild and clear weather which was supposed to prevail during the time when this bird was hatching. The king-fisher is still contemplated as the associate of cloudless sunshine, and is often alluded to by our poets. The following stanza occurs in one of Shenstone’s effusions: we repeat it from early recollection.

“Why o’er the verdant banks of Ouse
Does yonder halcyon speed so fast?
’Tis all because she would not lose
Her fav’rite calm which will not last.”

The prevailing colours of the king-fisher are brilliant blue and green. In size it is very little larger than the lark. ‘It inhabits the banks of clear rivers and brooks, preferring those that flow with an easy current, and whose beds are margined with willows, alders, or close bushes. It is usually seen perched on

a small bough overhanging the stream, from whence it darts upon the small fish and aquatic insects, that form its food.

Sometimes it will hover suspended (in the manner of the kestrel and some other hawks) over the water, and precipitate itself upon its prey, when risen to the surface. Upon making a capture, it conveys the object to land, and, after beating it to death upon a stone, or on the ground, swallows it whole. The bones and other indigestible parts are afterwards ejected in small pellets, by the mouth.—Its flight is very rapid, and sustained by a quickly repeated motion of the wings, and is always in a straight and horizontal direction, near the surface of the water. These birds breed in the banks of the streams they haunt, either digging a hole themselves, or taking possession of that of a water-rat, which they afterwards enlarge, to suit their convenience. The bearing of the hole is always diagonally upwards, and it pierces two or three feet into the bank.—The nest is composed of the above-mentioned pellets of fish-bones, ejected into a small cavity at the farther end of this retreat, and upon which the eggs are laid, to the number of six or seven, of a transparent pinkish-white. Montagu remarks, that the hole in which they breed is not fouled by the castings of the old birds, but becomes so by the droppings of the brood, which, being of a watery nature, cannot be carried away by the parents, as is usual with most small birds. Instinct has therefore taught them to make the hole in a sloping direction, in order to carry away the offensive matter, which may frequently be seen issuing from the entrance of this passage to the nest.

The young, when nearly fledged, are very voracious, and often reveal their habitation by their continued cry.

Attempts have been sometimes made to rear the king-fisher in a state of confinement, but without success; as it will not live without a full supply of fresh fish, which it is difficult to procure at all seasons. Worms have been tried as a substitute, but without answering the intended purpose.”*

The common king-fisher is the only species of an extensive genus that is found in Europe, throughout which it is generally dispersed; and it differs in no respect from the same bird in Asia and Africa, as I have had an opportunity of examining specimens from both Continents.

* Selby's Illustrations of Ornithology.

OF

CETACEOUS ANIMALS IN GENERAL.

THIS globe presents itself to us under two important aspects, —as land, surrounded by an ethereal atmosphere,—and as water, consisting of a medium of great density. Oxygen, that vital air by means of which, through the renovation of the deteriorated venous blood, the life of animals is sustained, may, however, be extracted from both the atmosphere and the water ; and nature has accordingly endowed her creatures with respiratory organs peculiarly adapted to each state of existence. The animals with a backbone, which exist on the earth's surface, breathe by means of lungs, inspiring and expiring the circumambient air ; while fishes destined to live exclusively in the ocean, are provided with a comparatively external mechanism, namely, the branchiæ, or gills, over which the surrounding fluid flows, to impart its oxygen to the blood. And some remarkable reptiles, as the *proteus* and *siren*, created with a capacity for living in either of these media, are possessed of both those organs by which the terrestrial and aquatic tribes respire.

It would be impossible for any animated being to contain in the ordinary bulk of a respiratory organ, that surface which would be requisite to extract from water a quantity of oxygen sufficient to maintain the temperature possessed by warm-blooded animals : lungs in which over a large surface, and at intervals, the oxygeniferous medium can be diffused, are indispensable to these classes. But the function of respiration by lungs is impracticable to animals which are constantly submersed ; whence fishes respire by gills and are cold-blooded animals.

Having become acquainted with these facts, it cannot fail to

strike the observer with surprise, when he discovers in the ocean a large tribe of warm-blooded animals, which suckle their young, analogous to fishes in their external form, with the fin and the naked skin, divested of all appearance of hair, and pursuing a similar mode of life. And wonder will increase, when examination proves, that they are nothing else than terrestrial *mammalia*, or animals which suckle their young, whose external organs are concealed under the external figure of a fish. Speculation immediately suggests the fact, that fishes existed prior to the creation of *mammalia*, and that the Omnipotent has passed by gradations from one series of organization to another; that the type or model on which all animals with a spine are formed, is essentially the same; that those internal differences which were necessary to the terrestrial *mammalia*, were first attempted in the inhabitants of the ocean. The Cetacea, of which the whale serves as an example, respire by means of lungs, incessantly by rising to the surface for atmospheric air: they are viviparous, and suckle their young; and the sexes associate in the manner of terrestrial animals. The bones, which represent those of the anterior limbs of quadrupeds, are concealed under thick tendinous envelopes in the form of pectoral fins; those representing the hind limbs are displaced by the cartilages of a horizontal tail fin—in which respect they differ from fishes, for in them it is always vertical—and the pelvis is in a rudimentary state.

With gills pulmonic breathes the enormous whale,
And spouts aquatic columns to the gale;
Sports on the shining wave at noontide hours,
And shifting rainbows crest the rising showers.—DARWIN.

Some striking peculiarities present themselves in the general organization of the cetacea. Constantly immersed in the water, with the exception of a small portion of the body, it became necessary to the act of respiration, that the nostrils should have a direction differing from terrestrial *mammalia*; and we find in the cetacea, apertures which have been named *Spiracles*, placed on the summit of the head, in a perpendicular direction, by which are performed the functions of respiration, and the ejection of the water which passes into the mouth during the act of feeding.

The enormous size of the cetacea is perhaps one of the most

amazing facts in their history; varying in developement from the most colossal proportions to the ordinary size of other beings, they are in their extreme bulk the largest of known animals. Indeed it is natural, says Lesson, that these giants of the animal kingdom, occupying the immense deserts of the sea, should bear relation to the vast surface which they have to animate. Thus the extensive wastes of Africa are the habitations of the largest quadrupeds, such as the elephant, the rhinoceros, and the giraffe.

The habits of the cetacea vary in the different groups. The whales are large and harmless, but move in their native element with amazing power; the cachalots are fierce and courageous; the dolphins warlike and voracious. The developement of the brain bears an interesting relation to the manners of the animal; of little magnitude in any of the cetacea, in proportion to the bulk of the body, it assumes its maximum in dolphins, and their possession of superior intelligence is attested by all who have studied their habits.

Till the time of Bloch, whales and their congeners were always associated with fishes, and it was not till the first edition of the animal kingdom by Cuvier, that a true arrangement of cetaceous animals was formed. These he divided into the *herbivorous cetacea*, and the *cetacea proper*, which feed on fish. The whole animals forming the class, however, are remarkable for the strong typical similarity that exists amongst the different species of which it is composed.

THE GREAT WHALE.

Captain Scoresby says, "the food of the whale is generally supposed to consist of different kinds of *sepia medusæ*, or the *cliolimacina* of Linnæus; but I have great reason to believe, that it is chiefly, if not altogether, of the *squillæ* or shrimp tribe; for, on examining the stomach of one of large size, nothing else was found in it; they were about half an inch long, semi-transparent, and of a pale red colour. I also found a great quantity in the mouth of another having been apparently vomited by it. When the whale feeds, it swims with considerable velocity under

water with its mouth wide open. The water enters by the forepart, but is poured out again at the sides, and the food is entangled and sifted as it were by the whalebone, which does not allow any thing to escape."

The vast size of these animals is thus described by the poet :—

Nature's strange work, vast whales of differing form,
Toss up the troubled floods and are themselves a storm.
Uncouth the sight, when they in dreadful play
Discharge their nostrils, and refund a sea ;
Or angry lash the foam with hideous sound,
And scatter all the watery dust around.
Fearless the fierce destructive monsters roll,
Ingulph the fish, and drive the flying shoal.
In deepest seas these living isles appear,
And deepest seas can scarce their pressure bear :
Their bulk would more than fill the shelvy strait,
And fathom'd depths would yield beneath their weight.

To the Greenlanders, as well as the natives of more southern climates, the whale is an animal of essential importance ; and these people spend much time in fishing for it. When they set out on their whale-catching expeditions, they dress themselves in their best apparel, fancying that if they are not cleanly and neatly clad, the whale, who detests a slovenly and dirty garb, would immediately avoid them. In this manner, about fifty persons, men and women, set out together in one of their large boats. The women carry along with them their needles, and other implements to mend their husbands' clothes, in case they should be torn, and to repair the boat, if it happen to receive any damage. When the men discover a whale, they strike it with their harpoons, to which are fastened lines or straps two or three fathoms long, made of seal-skin, having at the end a bag of a whole seal-skin, blown up. The huge animal, by means of the inflated bag, is in some degree compelled to keep near the surface of the water. When he is fatigued and rises, the men attack him with their spears till he is killed. They now put on their *spring jackets*, (made all in one piece of a dressed seal's skin,) with their boots, gloves, and caps, which are laced so tightly to each other, that no water can penetrate them. In this garb they plunge into the sea, and begin to slice off the fat all round the animal's body, even from those parts that are under water ; for, their jackets being full of air, the men do not sink, and they have the art of

keeping themselves upright in the sea. They have sometimes been known so daring as, while the whale was still alive, to mount on his back and kill him from thence.

On the 18th September, 1827, a shoal of whales appearing in the offing, near Fittel-head, in Shetland, the fishermen immediately collected with their boats, and succeeded in driving twenty-seven of them on the shore, in Quendal-bay. One of them measured by the light-keepers of Sumburgh-head, was found to be seventy-four feet in length, and seventeen feet between the forks, or tips of the tail.

According to the calculations of Lacepede, the whale swims at the rate of thirty-three feet in a second, and it is computed, that it might circumnavigate the globe in the direction of the equator, in forty-seven days, even allowing it to rest by night during that time.

Goldsmith has stated the size of the whale to be from sixty to seventy feet ; which would appear to be the utmost size they grow to ; as the intelligent and scientific Scoresby says, "it is said that the whale was formerly much larger than it is at present, being sometimes one hundred to one hundred and twenty feet long ; but the accuracy of this statement is to be questioned, for the largest I ever heard of being caught, did not exceed seventy feet in length ; and this was reckoned a very uncommon individual. Of three hundred and twenty-two which I have seen taken, no one, I believe, exceeded sixty feet in length, although many of them were full grown ; and the longest I ever measured, was fifty-eight feet from one extremity to the other, being one of the largest to appearance which I ever saw. I therefore conceive, that sixty feet may be considered as the size of the largest animals of this species, and sixty-five feet in length as a magnitude which very rarely occurs." We are, however, informed by Sir Charles Giesecké, that in the spring of 1813, a whale was killed at Godhava, of the length of sixty-seven feet.

Captain Scoresby, in his remarks on the size of the Greenland whale, makes the following interesting observations. "Such," says he, "is the avidity with which the human mind receives communications of the marvellous, and such the interest attached to those researches which describe any remote or extraordinary production of nature, that the judgment of the traveller receives a bias, which, in all cases of doubt, induces him to fix upon that

extreme point in his opinion, which is calculated to afford the greatest surprise and interest. Hence, if he perceives an animal remarkable for its minuteness, he is inclined to compare it with something still more minute—if remarkable for its bigness, with something fully larger. If the animal inhabits an element which he cannot examine, or is seen under any circumstances which prevent the possibility of his determining its dimensions, his decision will certainly be in that extreme which excites the most interest. Thus, when a whale has first been seen by any voyager, within a sufficiently short distance, we find it generally compared to ‘a mountain,’ a ‘floating island,’ or at least to the size of a ship.”

“The blubber of a sucker, when very young, frequently contains little or no oil, but only a kind of milky fluid; in which case, when the animal is deprived of life, the body sinks to the bottom, as also does the blubber when separated from it; while the body and blubber of larger individuals always swim.

“The flesh of the young whale is of a fine red colour; that of the old approaches to black, is coarse like that of a bull, and is said to be dry and lean when boiled, because there is little fat admixed with the flesh.”

There are annually from three hundred to three hundred and fifty ships of different nations employed in the whale fishery. These ships in the course of two months, sometimes kill from eighteen hundred to two thousand whales.

The British fishery has yielded a produce and value much exceeding that of the Dutch, during the period of its greatest prosperity. In the five years, ending with 1818, there were imported into England and Scotland 68,940 tuns of oil, and 3,420 tons of whalebone; which, valuing the oil at £36 10s. and the bone at £90, with £10,000 in skins, raised the entire produce to £2,834,110 sterling, or £566,822 per annum. The fishery of 1814, a year peculiarly fortunate, produced 1,437 whales from Greenland, yielding 12,132 tuns of oil, which, even at the lower rate of £32, including the whalebone and bounty, and added to the produce from Davis’ Strait, formed altogether a value of above £700,000.

In the year 1829, the total number of British ships employed in the whale fishery amounted to 89; the number of fish caught that season, were 871, which yielded 10,672 tuns of oil, and

607 tons, 10 hundred weights of whalebone ; producing the estimated value of £266,800 for the oil at £25 per tun, and £109,350 for the whalebone, at £180 per ton, making a total sum of £376,150 sterling.

In the Commercial tables presented to the House of Commons in 1830, the entire proceeds of that year are stated at £428,591 6s. 6d.; but this, of course, includes also the southern fishery. Of this amount there were exported to foreign countries, oil to the value of £73,749 10s. 6d. and whalebone amounting to £40,666 15s. 6d.; making in all, £114,416 6s. It may be mentioned, that this trade is now carried on entirely without legislative encouragement, the bounty having ceased to be granted since the year 1824.

Between the year 1669 and 1778, both inclusive, being a period of 107 years, the Dutch sent to Greenland 14,167 ships, of which 561, or about four in the hundred, were lost ; they took during this period the surprising number of 57,590 whales, yielding 3,105,596 quardeelen of oil, and 63,179,860 pounds of whalebone, which yielded a value of £18,631,292 sterling. The expense of fitting out the ships amounted to £11,879,619 ; value of ships lost, £470,422 ; after paying the expenses of preparing oil, bone, &c. the total profit was £3,714,142.

THE SMALL HEADED NARWAL.

In 1808, a small headed narwal was found close by the shore at the entrance of the Sound of Freesdale, in Zetland, on the morning of the 27th September ; which was seen and accurately described by the Rev. Dr Fleming, well known as a zealous and expert naturalist, to whose account we are indebted for the following particulars :—

This animal measured only twelve feet from the snout to the notch which divides the tail. It was much smaller, therefore, than those which have been found in other seas. A narwal of the same species, we are informed by Lacepede, was found near Boston, at the village of Frieston, in Lincolnshire, in the month of February, 1800, which measured about twenty-six feet in length ; and another of the same kind, described by

Tulpius, was about twenty-two feet long, from which it would appear that the one found in Zetland was not full grown.

Lacepede says the head occupies only a tenth part of the length of the body ; the forehead rises suddenly from the snout, and then proceeds nearly in a horizontal direction for a few inches, when it becomes slightly elevated. Over this elevation, in the fore part of which the blow-hole is situated, the forehead is rounded, and, when viewed from before, resembles a bull.

In that described by Dr Fleming, behind the elevation of the head there is a slight depression, which serves to point out the line of separation between the head and the body. The back swells gradually to within a few inches beyond the pectoral fins; where it was the thickest; from this elevation a ridge proceeded to within a few inches of the division of the tail; over the beginning of this ridge, the body was four feet four inches in circumference. The animal is thickest in the middle, continuing nearly of the same thickness towards the head, but becoming acuminate towards the tail.

The mouth is small, pointed before, and the upper lip extended a little way beyond the under. The extent of the opening of the mouth is small, being little more than five inches in depth.

The eye, about an inch in diameter, is situated behind the opening of the mouth. It has two wedge-shaped pectoral fins, situated in the fore-part of the body towards the under side: these are thirty inches distant from the snout, fifteen inches long, five broad at the base, and six inches broad towards the middle. The tail is horizontal as in other cetaceous animals. It has one tooth projecting from the left side of the upper jaw, twenty-seven inches long, besides twelve inches inserted in the socket, making its whole length thirty-nine inches, being little more than a fifth of the animal's length. The colour is dusky black on the upper parts of the body, variegated with still darker spots not very apparent; the skin is smooth and glossy.

The narwal which was discovered at Frieston, "when found," says Sir Joseph Banks, "had buried the whole of its body in the mud, of which the beach there is composed, and seemed safely and securely waiting the return of the tide. A fisherman going to his boat, saw the horn, which was covered up, and by trying to pull it out of the mud, raised the animal, who stirred himself hastily to secure his horn from the attack."

Some authors say, that these animals obtained the name of *Narh-wal*, or whale which feeds on dead bodies, from their having been believed to subsist on such dead and putrid animals as are found floating in the water.

We have seen the posts of a bed made of the horns of these animals, and with fancifully festooned curtains, which had an elegant and novel effect.

The detached weapons of narwals are deposited in many cabinets, as the horns of that generally esteemed fabulous quadruped, the unicorn. These have occasionally been found broken short off, and deeply buried in the keels and bottoms of vessels; and even in the bodies of some of the largest whales, against which either accident or design may have led the narwals to plunge.

The narwals do not appear to have any organs of voice. In their general disposition and manners, they are stated to be mild and peaceable; and to be formidable only when compelled to defend themselves from the attack of their enemies. Their principal food consists of small fish and marine mollusca, such as the actinæ and cuttle-fish: the horny mandibles or jaws of the latter have sometimes been found in their stomachs in immense quantity. They usually swim in troops; and are found in most parts of the northern ocean.

An individual of this species, nearly eighteen feet in length, was cast ashore and taken alive not far from Boston, about the end of last century.

OF THE CACHALOT TRIBE IN GENERAL.

The interior organization of the cachalots is somewhat different from that of the whales, and requires a nourishment more substantial than small fish and marine mollusca. These animals consequently attack and devour several of the larger kinds of fish, and occasionally even porpoises, dolphins, and young whales, which they are enabled to seize and tear to pieces by means of their teeth. They are not contented, like the whales, with merely exerting their strength in self-defence; but will themselves provoke a combat with the larger inhabitants of the deep, and will attack and destroy them with the utmost

vigour and address. Their ferocity and their muscular powers are such, that all the species are considered by the fishermen as extremely dangerous, and one or two of them in particular, they are very cautious to avoid. It is said that some of them, when they are attacked, will throw themselves on their back, and in that position will defend themselves with their mouth.

The upper jaw of the cachalots is broad, and entirely destitute of teeth, or with teeth so short, as to be nearly concealed in the gum. The under jaw is narrow and provided with somewhat large, conical teeth, which fit into sockets in the upper jaw. The spiracles or breathing holes of the head, have only a single opening. The bodies of these animals are entirely destitute of hair, and their skin is very smooth and soft.

The length of the blunt-headed cachalot, when full grown, is about seventy feet, and its girth about fifty. When viewed from above, it appears like an immense animated mass, truncated in front, so that the muzzle terminates in a somewhat squared, and almost perpendicular extremity. The head constitutes nearly one-third of the whole body; the mouth is situated at the upper part, so as to have somewhat the appearance of a lid or cover of an enormous box turned upside down. The eyes are placed above the corners of the mouth; and are so minute as to be scarcely perceptible. The pectoral fins are each about three feet in length. On the posterior part of the back there is a longitudinal and callous protuberance, or spurious fin. The tail is very small and slender, each of the lobes being hollowed somewhat like the blade of a scythe. The skin is smooth, oily, and almost as soft to the touch as silk. Its usual colour is black.

THE GREAT-HEADED CACHALOT.

On Tuesday the 16th September 1827, as some of the fishermen, on the banks of the Lower Shannon, Ireland, at the Clare side, about four miles below Carrigahoult, were pushing from the shore in their boats for the purpose of laying down spillers, in the usual way, they observed several swells in the water,—on venturing to approach what so forcibly caught their attention,

several huge substances seemed floating along, scarcely appearing above the surface. The boatmen finding themselves in imminent danger, rowed with all their strength to get outside, in which they luckily succeeded. By this time it was evident that the motion of the waters proceeded from some sea monsters of enormous size, seemingly in pursuit of herrings, or other small fish, and a heavy fog which prevailed in the morning, strengthened the supposition that they, altogether, had missed their reckoning. Be this as it may, in the trap of a receding tide the fishermen resolved to net their visitors. This determined on, the wise men of the squadron put their heads together, when the artillery of the quarry, the boatmen having no other weapons on board, was instantly resorted to,—the charge was awfully perilous,—the brave fishermen, however, persevered until their prizes were stoned into Rea-Hill-bay, when the tide being rapidly on the ebb, soon left them high and dry on the sand banks. The boats having landed their crews, these fishermen beheld with joy that they had secured four small whales of a species unknown to them, but evidently the great-headed cachalot, represented at plate 25, fig. 3 of Goldsmith. They had no dorsal fin, and were without teeth, their places being supplied with a demi-osseous substance; the lower jaw was much smaller than the upper, which is quite the reverse in the grampus; they had two pectoral and two abdominal fins; the snout proceeded abruptly from the head not unlike the dolphin. The colour, the back, and chest being of a uniform polished lead colour: they had each one spiracle, or breathing hole, on the back not far behind the eye, through which they discharged enormous quantities of water at intervals, causing the appearance of a marine *jet-d'eau* ascending to a vast height in the air. The maxillary bone of the largest measured about three feet and a half, the animals themselves being from twenty-seven to thirty feet in length, and the circumference about fifteen feet, and the height when lying more than five feet, each being in size equal to six large cows.

THE DOLPHIN.

The body of the dolphin is oblong and roundish, and the snout

narrow and sharp-pointed, with a broad transverse band, or projection of the skin, on its upper part. It is a longer and more slender animal than the porpoise, measuring nine or ten feet in length, and about two in diameter. The body is black above and white below. The mouth is very wide, reaching almost to the breast, and is provided with forty teeth; twenty-one in the upper, and nineteen in the under jaw: when the mouth is shut the teeth lock into each other.

The dolphin swims in troops, and its motions in the water are performed with such wonderful rapidity, that the French sailors call it *la flèche de la mer*, or the sea arrow. We are informed by Rondelet, that persons who tormented themselves to do what was considered impossible, were often proverbially compared to those who would hold a dolphin by the tail. St Pierre, in his voyage to the Isle of France, assures us that he saw a dolphin swim with apparent ease, round the vessel in which he was sailing, though it was going at the rate of about six miles an hour. A shoal of dolphins followed the ships of Sir Richard Hawkins upwards of a thousand leagues. They were known to be the same from the wounds they occasionally received from the sailors. They are greedy of almost any kind of scraps that are thrown over board, and consequently are often to be caught by means of large iron hooks, baited with pieces of fish and garbage. The progressive motion of the dolphin in the water has a striking resemblance to the undulating motion of a ship under sail; and it has been remarked, that when their regular course has not by any accident been changed, it is usual for them to swim against the wind.

The bounding and gamboling of dolphins has attracted the attention of writers and poets in all ages; and is described as being extremely beautiful.

“What pleasing wonders charm the sailors’ sight,
When calms the dolphin to their sports invite?
As jovial swains in tuneful measure tread,
And leave their rounding pressures on the mead;
So they in circling dance, with wanton ease,
Pursue each other round the furrow’d seas,
With rapid force the curling streams divide,
Add to the waves, and drive the slow-paced tide.”

The ancients believed that dolphins attended all cases of shipwreck, and transported the mariners in safety to the shore.

Pirætes having made captive Arion the poet, at length determined on throwing him overboard, and it is said that he escaped in safety to the shore on the back of a dolphin.

“ But past belief, a dolphin’s arched back
Preserved Arion from his destined wrack ;
Secure he sits, and with harmonious strains
Requites the bearer for his friendly pains.”

In consequence of these and other imaginary qualities, this animal was consecrated to the gods, and much celebrated for its love of the human race, and was honoured with the title of the Sacred Fish. It is thus spoken of by the poet :

“ Kind, gen’rous dolphins love the rocky shore,
Where broken waves with fruitless anger roar.
But though to sounding shores they curious come,
Yet dolphins count the boundless sea their home.
Nay, should these favourites forsake the main,
Neptune would grieve his melancholy reign.
The calmest, stillest seas, when left by them,
Would awful frown, and all unjoyous seem.
But when the darling frisks his wanton play,
The waters smile, and every wave looks gay.”

It matters little, nor can it now be accounted for, why this animal had acquired so much celebrity; but this we know, it has formed a fine poetical allusion in all ages, and has afforded much scope to the painter, in allegorical and imaginary pieces, where Neptune and Venus with their attendant tribes have been introduced.

THE BELUGA.

The colour of the beluga is cream white. This colour depends on a white rete mucosum, in many places about half an inch thick, which is covered with a thin transparent cuticle. It is destitute of a dorsal fin; the opening of its mouth is small, and with nine obtusely pointed teeth on each side in both jaws. This animal measures from twelve to eighteen feet; it is a native of high northern latitudes; it abounds in the seas near Disco Island in Greenland, and is not uncommon off Spitsbergen, in

latitude 77°. Scoresby never observed it lower than Jan Mayen's Land, and seldom saw it among the ice, but it seemed to frequent places where the water was clearest and smoothest. Thirty or forty belugas are often observed in a herd together. They are very seldom pursued by the whale fishers, because they find it difficult to strike them, on account of the great rapidity of their motions, and besides to our adventurers they are of little value when killed.

Sir Charles Giesecke says, that belugas come in herds to the coast of West Greenland every year, about the end of November, their arrival being hastened by the prevalence of storms from the South-west. It is, next to the seal, the most useful animal to the Greenlanders. The flesh is said to be somewhat similar to that of beef, though oily, and the skin is also eaten, either raw, dried, or boiled; that by this skin, we however presume, is probably meant the thick white substance analogous to a *rete mucosum*, above mentioned. Crantz evidently uses the term in this sense, when he says, 'the white wrinkled skin is the thickness of a finger.'

The belugas are said not to be shy, but may be seen often tumbling themselves round near the boats of the Greenlanders. They are, however, so rapid in their motions, that they have been described as darting along with the velocity of an arrow.

These animals may occasionally stray to the southward in pursuit of fish, or be impelled far in that direction, by long continued easterly winds. When they happen to get entangled among the drift-ice, if the wind prevail in one direction for several days, a straggler may be led so far from his haunts, as to be unable to rejoin his party. An instance of this kind occurred in the Frith of Forth, in the spring of 1815: when a beluga was noticed to pass and repass the harbour of Alloa, for about three months; and although many attempts were made to kill it, they all proved abortive, until it had extended its-excursions up the intricately winding river Forth, as far as Stirling, where it was killed on the 6th of June. This animal was purchased by Mr Bald, engineer, and sent to Leith by the Alloa packet, for the inspection of the Professor of Natural History at Edinburgh.

Mr Bald noticed that the beluga generally passed upwards when the tide was flowing, and returned down the Frith with the ebb; this sometimes happened every day, and sometimes

once in the two or three days : it came frequently to the surface, and was well known for three months, by the name of the white whale. It was supposed to run up the river in pursuit of salmon, and was at length killed by the salmon-fishers, near the Abbey of Cambuskenneth.

The animal had been attacked both by fire-arms and spears. A musket ball had entered the lungs, and was found lodged in them by Dr Barclay, in the course of dissecting ; and several gashes made with a pointed weapon, appeared in different parts of the body. Several healed wounds, the scars of which were quite distinguishable, indicated that this individual had probably been struggling among drift-ice. In some places, the cuticle and rete mucosum remained in a divided state, while the true skin had healed.

The late Colonel Imrie, mentioned having seen two young belugas, which were cast upon the beach of the Pentland Frith, some miles east of Thurso, in August 1793. The length of the one from the front of the forehead to the tip of the tail, was seven feet ; and of the other, seven feet and a half. They were both males. " The principal colour of their skin," says he, " was white, but that was mottled with a brownish gray colour." Other naturalists who have seen the young animals, describe them as blackish, mottled dusky, or pearl-gray, becoming white as they advance to maturity.

The specimen which was captured in the Forth, was in shape highly symmetrical, and at once suggested the idea of perfect adaptation to rapid progressive motion in the water. It resembled generally a double cone, one end of which was considerably shorter than the other. The head was small and lengthened, but over the forehead, as in the narwal and porpoise, was a thick round cushion of flesh and fat :—the body continued to swell as far as the pectoral fins : and from this point gradually diminished to the setting on of the tail or organ of motion. On the middle of the back, as in other whales, there was a longitudinal ridge, partly bony, partly soft ; its extreme length was thirteen feet four inches. The ordinary length of a full grown beluga is from eighteen to twenty feet.

The sailors on the Arctic expedition, under the command of Captain Parry, were astonished and amused with a species of music produced by the beluga, which received the name of

Whale Song ; and is thus described by Mr Fisher, " Whilst we were pursuing them to-day," says he, " I noticed a circumstance that appeared to me rather extraordinary at the time, and which I have not indeed been able to account for yet to my satisfaction. The thing alluded to is a sort of whistling noise that these fish made when under the surface of the water ; it was very audible, and the only sound I could compare it to, was that produced by passing a wet finger round the edge, or rim of a glass tumbler. It was most distinctly heard when they were coming towards the surface of the water, that is, about half a minute before they appeared ; and immediately when they got their heads above water, the noise ceased. The men were so highly amused by it, that they repeatedly desired one another to pull smoothly, in order to get near the place where the fish were supposed to be, for the purpose of hearing what they called a whale song."

THE CA'ING WHALE.

THIS animal is the *Dolphinus deductor*, which is figured in Scoreby's work on the arctic regions. The following description of the capture of a shoal of them, is from the pen of Dr Hibbert :—

" I had landed at Mr Leisk's of Burra Voe, in Yell, when a fishing boat arrived with the intelligence, that a drove of ca'ing whales had entered Yell Sound. Females and boys, on hearing the news, issued from the cottages in every direction, making the hills reverberate with joyful acclamations of the event. The fishermen armed themselves with a rude sort of harpoon, formed from long iron-pointed spits ; they hurried to the strand, launched their boats, and, at the same time stored the bottom of them with loose stones. Thus was a large fleet of yawls soon collected from various points of the coast, which proceeded towards the entrance of the Sound. Some slight irregular ripples among the waves, showed the place where a shoal of whales were advancing. They might be seen sporting on the surface of the ocean, for at least a quarter of an hour, disappearing and rising again to blow. The main object was to drive them upon the sandy shore of Hamna Voe, and it was soon evident, that with

their enemy in their rear, they were taking this direction. Most of the boats were ranged in a semicircular form, being at the distance of about fifty yards from the animals. A few skiffs, however, acted as a force of reserve, keeping at some little distance from the main body, so that they might be in readiness to intercept the whales, should they change their course. The sable herd appeared to follow certain leaders; who, it was soon feared, were inclined to take any other route than that which led to the shallows on which they might ground. Immediately the detached crews rowed with all their might, in order to drive back the fugitives, and, by means of loud cries, and large stones thrown into the water, at last succeeded in causing them to resume their previous course. In this temporary diversion from the shore, the van of the boats were thrown into confusion; and it was a highly interesting scene, to witness the dexterity with which the Shetlanders handled their oars, and took up a new semicircular position in rear of the whales. Again the cetacea hesitated to proceed into the inlet, and again a reserve of boats intercepted them in their attempt to escape, while a fresh line of attack was assumed by the main body of the pursuers. It was thus that the whales were at length compelled to enter the harbour of Hamna Voe. Then did the air resound with the shouts that were set up by the boatmen, while stones were flung at the terrified animals, in order to force them upon the sandy shore of a small creek; but before this object could be effected, the whales turned several times, and were as often driven back. None of them, however, were yet struck with the harpoon; for if they were to feel themselves wounded in deep water, they would at all hazards betake themselves to the open sea. The leaders of the drove soon began to ground, emitting at the same time a faint murmuring cry, as if for relief; the sand at the outlet of the bay was disturbed, and the water was losing its transparency. The shoal of whales which followed increased, as they struck the shore, owing to the muddiness of the bay; they madly rolled about, irresolute from the want of leaders, uncertain of their course, and so greatly intimidated by the shouts of the boatmen, and the stones that were thrown into the water, as to be easily prevented from regaining the ocean. Crowds of natives of each sex, and of all ages, were anxiously collected on the banks of the Voe, hailing with loud acclama-

tions the approach of their visitants from the northern seas ;— and then began the work of death. Two men, armed with sharp iron spits, rushed breast-high into the water, and seizing each a fin of the nearest whale, bore him unresistingly along to the shallowest part of the shore. One of the deadly foes of this meekest of the inhabitants of the sea deliberately lifted up a fin, and beneath it plunged into the body of the animal the harpoon that he grasped, so as to reach the large vessels of the heart. A long state of insensibility followed, succeeded by the most dreadful convulsions ; the victim lashed the water with his tail, and deluged the land for a considerable distance ; another deathlike pause ensued ; throws still fainter and fainter were repeated with shorter intermissions, until at length he lay motionless on the strand. The butchers afterwards set off in a different direction, being joined by other persons assuming the same functions. Female whales, appearing by their hasty and uncertain course, to have been wrested from their progeny, and sucklings no less anxiously in quest of those from whose breasts they had received their nutriment, were by the reckless steel of the harpooner, severally arrested in their pursuit. Numerous whales which had received their death-wound soon lined the bay, while others at a greater distance were rolling about among the muddy and crimsoned waves, doubtful whither to flee, and appearing like oxen to wait the return of their slaughterer. Wanton boys and females, in their anxiety to take a share of the massacre, might be observed to rankle with new tortures the gaping wound that had been made, while, in their blood-thirsty exultation, they appeared to surpass those whose more immediate duty it was to expedite the direful business. At length the sun set upon a bay that seemed one sheet of blood : not a whale was allowed to escape : and the strand was strewed over with carcasses of all sizes, measuring from six to twenty feet, and amounting to not fewer than eighty in number. Several of the natives then went to their homes in order to obtain a short repose ; but as the twilight in this northern latitude was so bright as to give little or no token of the sun's departure, many were unremittingly intent upon securing the profit of their labour, by separating the blubber, which was of the thickness of three or four inches. It was supposed, that the least of these whales would yield about a barrel of oil ; and it was loosely computed, that

they were on an average worth £2 to £3 sterling a piece, the value of the largest being as much as £6."

THE GRAMPUS.

The length of the Grampus is from twenty to twenty-five feet. In its general form and colour it much resembles the rest of its tribe, the snout is blunt and short, and the body and tail elongated. The back fin of this animal sometimes measures six feet in length.

The grampus is a great enemy to different species of whales; they assemble in large herds, and assail the larger whales like as many bull-dogs, and tear at them till they give vent to their sufferings by loud and frequent bellowings; nor do they quit their victims in many cases till they kill and devour them. It is said they also attack seals, which they surprise while asleep on the rocks, from which situation they dislodge them with their fins, and precipitate them into the water.

It is very seldom that the grampus can be taken alive, from its vast agility. They seldom remain more than a moment above the surface of the water; and it is only when they impetuously pursue their prey to shallow waters that they are taken. When thus stranded they flounder about at a great rate, and are either killed when observed, or sometimes make their escape upon the reflux of the tide. But it not unfrequently happens that they thus run themselves ashore during full tide, in which case they must either be taken or die.

In one of the poems of Waller, a story (founded on fact) is recorded of the parental affection of these animals. A grampus and her cub had got into an arm of the sea, where, by the desertion of the tide, they were inclosed on every side. The men on shore saw their situation, and ran down upon them with such weapons as they could at the moment collect. The poor animals were soon wounded in several places, so that all the immediately surrounding water was stained with their blood. They made many efforts to escape; and the old one, by superior strength forced itself over the shallow, into a deep of the ocean. But though in safety herself, she would not leave her young

one in the hands of assassins. She therefore again rushed in; and seemed resolved since she could not prevent, at least to share the fate of her offspring. The story concludes with poetical justice; for the tide coming in conveyed them both off in triumph.

THE PORPOISE.

The general form of the porpoise much resembles that of the dolphin; it is, however, somewhat less in size, and has a snout both much broader and shorter. It measures generally from six to seven feet in length; thick in the fore parts, and gradually tapering towards the tail. The colour is either bluish-black or a very dark brown above, and nearly white beneath.

Although this animal has the same natural affections for its young, and leads nearly the same kind of life as the dolphin, yet it is improperly held by mankind in a different kind of estimation. The dolphin has been consecrated to the gods, while the porpoise has in almost all languages obtained the degrading name of *sea-hog*. This arises from the fame attached to the former by the vivid imaginings of the Grecian poets, while the latter has acquired its appellation from sailors and fishermen, as the ancients knew little, if any thing, about the porpoise.

Porpoises are seldom seen, except in troops of from six to thirty. Indeed, they sometimes congregate in much larger numbers. On one occasion we saw a vast flock of them, from the windows of our apartments in Holy Island Castle, coast of Northumberland. There must have been many hundreds in this flock, as they occupied a line of not less than a mile in length: and took a southern direction, seemingly in eager pursuit of fish. The great size of the caudal fin of the porpoise, and the strong muscles of their tail, contribute to render them very active in the water; along the surface of which, like dolphins, they sometimes move with surprising rapidity. They frequently gambol about on the water with great vivacity; their appearance is believed by the seamen to prognosticate approaching storms; and, on that account, they are held by them in great detestation. During the most tempestuous weather they are able to surmount

the waves, and to pass along the agitated surface of the ocean, fearless of danger and secure from injury.

All kinds of fish constitute their prey, but especially such as congregate in large shoals, such as cod, herrings, haddock, and mackerel.

Porpoises are very numerous in the river St Laurence, in Canada, where they generally frequent shoal-water, in search of prey. The natives adopt the following method of catching them. When the fishing season arrives, the people collect together a great number of sallow twigs, or slender branches of other trees, and stick them pretty firmly into the sand banks of the river, which at low water are left dry; this is done on the side towards the river, forming a long line of twigs at moderate distances, which at the upper end is connected with the shore, an opening being left at the lower end that they may enter. As the tide rises, it covers the twigs, so as to keep them out of sight; the porpoise in quest of his prey, gets within the line, where he continues his chase, till he finds by the ebbing of the tide, that it is time to retire into the deeper water. He now makes towards the river; but the twigs being then in part above water, and all agitated by the current, he no sooner sees them shaking about, than he takes fright, and retreats backwards as far as he can from this disagreeable rampart. The tide still continuing to ebb, he returns time after time; but, never being able to overcome his dread of these terrific twigs, he rolls about until he is deserted entirely by the water; when those who placed the snare rush out in numbers, properly armed, and while in this defenceless state, they overpower him with ease. In this manner, more than a hundred of these huge creatures (one of which will yield a hogshead of oil,) have been killed at one tide.

The porpoise was once considered as a sumptuous article of food, and is said to have been occasionally introduced at the tables of the old English nobility. It was eaten with a sauce composed of sugar, vinegar, and crumbs of fine bread. It is, however, now generally neglected, even by the sailors.

In America, the skin of this animal is tanned and dressed with care. At first it is extremely tender, and nearly an inch thick, but is shaved down till it becomes somewhat transparent. It is made into waistcoats and breeches by the inhabitants, and is said also to make excellent covering for carriages.

OF FISHES IN GENERAL.

" See through the air, the ocean, and the earth,
All matter quick, and bursting into birth ;
Above how high progressive-life may go,
Around how wide, how deep extend below !
Vast chain of being, which from God began,
Natures ethereal, human, angel, man,
Beast, bird, fish, insect, what no eye can see,
No glass can reach ; from infinite to Thee,
From Thee to nothing !"

It is believed that at great depths in the ocean animal life ceases to exist, and that fishes are not to be found where the water is excessively deep. It has been satisfactorily proved that fishes have certain limits in high stations. Raymond ascertained that the only fishes which occur in the waters of the Pyrenees, at the height of from one thousand to eleven hundred and sixty-two toises, are three species of trout. Higher up, all fishes disappear. The water salamander also ceases to live at the height of twelve hundred and ninety-two toises ;—probably because the higher lakes are generally half the year covered with ice. But cold is not the sole cause, as Humboldt says, that in the equatorial regions of America, where the freezing point of water begins fifteen hundred toises higher than in the Pyrenees, the fishes disappear earlier in the lakes and rivers. No trouts occur in the Andes. Under the equator, from eighteen hundred to nineteen hundred toises, where most of the lakes scarcely freeze any time during the year, fishes are no longer met with, with the exception of the remarkable *Peinelodes Cyclopus*, which are thrown out in thousands with the clay-mud, projected from fissures of the rocks at the height of 2500 toises. But these fishes live in the subterranean lakes.

The side fins of fish seem to be chiefly used to poise them ;

as they turn upon their backs immediately when killed ; the air bladder assists them perhaps to rise or descend, by its possessing the power to condense the air in it by muscular contraction ; and it is possible, that at great depths in the ocean the air in this receptacle may by the great pressure of the incumbent water become condensed into so small a space, as to cease to be useful to the animal.

The progressive motion of fish beneath the water is produced principally by the undulation of their tails. One oblique plane of a part of the tail on the right side of the fish strikes the water at the same time that another oblique plane strikes it on the left side, hence, in respect to moving to the right or left, these percussions of the water counteract each other, but they coincide in respect to the progression of the fish ; this power seems better applied to push forwards a body in water, than the oars of boats, as the particles of water recede from the stroke of the oar, whence the comparative power acquired is but as the difference of velocity between the striking oar and the receding water. So a ship moves swifter with an oblique wind, than with a wind of the same velocity straight behind it ; and the common windmill sail placed obliquely to the wind, is more powerful than one which directly recedes from it.

OF THE SHARK TRIBE.

" In ocean's pearly haunts, the waves beneath,
Sits the grim monarch of insatiate death ;
The shark, rapacious with descending blow,
Darts on the scaly brood, that swims below."—DARWIN.

ALL this rapacious tribe are marine, and more species and greater numbers of each prevail in warm than in temperate climates. They are solitary for the most part, and often wander at vast distances from their native haunts, and deal destruction on every thing that comes within their reach. Sharks have been known to follow vessels for several hundred leagues, for the purpose of securing the carcasses and filth that are thrown overboard. They grow to a vast size, and not unfrequently weigh four thousand pounds. Some of the species are, however, gregarious, and live on molluscons animals of different kinds. All the species are viviparous ; their young, when first protruded, being enclosed alive in a square pellucid horny case, terminated at the four corners by very long slim filaments, which are generally found twisted round coralines, sea-weed, and other fixed substances.

The flesh of all the tribe is tough, coarse, and smells so rank, that even when young it is hardly eatable. The bodies emit a strong phosphorescent light in the dark. The skin is rough, and in general use for polishing ivory, wood, and other substances ; thongs and carriage traces have also occasionally been made of it. The liver of the shark generally yields a considerable quantity of oil, which is, however, of a very rancid and offensive smell. There are upwards of thirty species, eleven of which inhabit the British seas.

The shark has three rows of sharp teeth within each other, which he can bend downwards internally to admit larger prey, and raise to prevent its return; his snout hangs so far over his mouth, that he is necessitated to turn upon his back before he can seize his prey. The body is in general compressed, long in proportion to the thickness, and tapers towards the tail. The head is obtuse, and on the side of the neck, there are from four to seven breathing apertures. The mouth is situated in the under part of the head.

Mr De Borda discovered the fossil tooth of a shark at Dax in France, which was examined by Count Lacepede, and found to measure three inches and three lines in length from the base, and three inches in breadth. A comparison of this tooth, with others belonging to the common shark, led this distinguished naturalist to conclude, that, in the former world, previous to the era of the deluge, there must have existed sharks seventy-nine feet in length. Fougas St Fond adopted these measurements of Lacepede in the determination of the probable length of a shark, a tooth of which in a fossil state was brought to him from the quarries of Montrouge, in the environs of Paris, and he concluded, that the animal to which the tooth belonged must have been about fifty feet in length, at the least.

THE WHITE SHARK.

This formidable animal is the dread of mankind in the seas where it prevails. There is no safety in bathing where this monster abounds.

“ Increasing still the terrors of the storms,
His jaws horrific arm'd with threefold fate,
Here dwells the direful shark. Lured by the scent
Of streaming crowds, of rank disease, and death,
Behold! he rushing cuts the briny flood,
Swift as the gale can bear the ship along,
And from the partners of that cruel trade
Which spoils unhappy Guinea of her sons,
Demands his share of prey, demands themselves :
The stormy fates descend, one death involves
Tyrants and slaves; when straight their mingled limbs
Crashing at once, he dyes the purple seas
With gore, and riots in the vengeful meal.”

The late Sir Brooke Watson was at one time swimming at a little distance from a ship, when he observed a shark approaching towards him. Struck with terror at its appearance, he immediately cried out for assistance; and a rope was instantly thrown out for him, and even while the men were in the act of pulling him up the ship's side, the shark darted after him, and at a single snap deprived him of his leg.

In the South American pearl fisheries, every diver defends himself against these animals, by carrying with him into the water a sharp knife, which he sticks into the belly of the fish if attacked by it; and it is said generally to retreat if it receives a wound from the diver. While the divers are employed at the bottom of the ocean, the officers of the vessels generally keep a sharp look out for the approach of sharks, and when one is observed, the ropes attached to the negroes are shaken to put them on their guard. It sometimes occurs that those on deck plunge into the water at the approach of a shark, with knives in their hands to defend their comrades, which, however, is sometimes of no avail.

In the West Indies, the negroes have frequently the hardihood to engage the shark in single combat, by diving beneath him, and in ascending stab him before he sees where they are. In these combats they frequently conquer this formidable creature; and thus through courage and tactics, overcome the great strength and ferocity of the shark.

Daily accustomed to see sharks, the natives of the South-Sea islands are not afraid of them, and may be seen enjoying the luxury of bathing even while these frightful animals are within their reach. Captain Portlock says, "I have seen five or six large sharks swimming about the ship when there have been upwards of a hundred Indians in the water, both men and women; they seemed quite indifferent respecting them, and the sharks never offered to make an attack on any of the men, and yet at the same time would seize our bait greedily; whence it is manifest that they derive their confidence of safety from their experience, that they are able to repel the attacks of those devouring monsters."

It is singular that the shark will not prey upon birds: although they will take a bait of any kind of flesh thrown overboard to them.

It is related in the 'History of Barbadoes,' that in the reign of Queen Anne, an English vessel having arrived at that country, some of the men were one day bathing, when a large shark sprung among them. A person on board perceiving the approach of the shark gave the alarm, when they all immediately swam to the ship, into which they all ascended in safety, except one, which the shark got hold of and snapt his body in two. A comrade and attached friend of the unfortunate man, when he beheld the lifeless trunk of his friend, was roused by a sudden impulse of revenge; and while the shark was seen swimming about amongst the blood-stained water in search of the remainder of his prey, the resolute youth plunged into the water, determined that he should compel the shark to disgorge the half of his victim, or be himself buried in the same grave. He had supplied himself with a long and sharp-pointed knife, and the rapacious animal no sooner beheld him in the water, than it made a desperate plunge at him; but the youth dexterously avoided the bite of the shark by diving under him, and seizing him somewhere below the pectoral fins, stabbed him several times in the belly. During this desperate adventure, the shark writhing with pain, and streaming with blood, plunged in all directions in order to disengage himself from his enemy. The crews of the surrounding vessels saw that the fate of this desperate conflict was decided; but they were ignorant which of the two had been slain, until at length, the shark, weakened by loss of blood, made towards the shore, and the young man still held fast by him, and forcing the animal on the beach, and ripping up his stomach, obtained the half of his friend, and buried it and the trunk in the same grave.

It is said that an Indian on the coast of California, on plunging into the sea, was seized by a shark, but by a desperate effort got quit of the monster's jaws, and, to show his fearlessness, threw blood and water at the animal. But the fish made another dash at him, and dragged him to the bottom in a moment, although surrounded by his companions, who were unable to render him any assistance, and he was never more seen.

In the Edinburgh Observer newspaper, the following singular account is given of the destruction of a shark. The narrator, while his schooner lay becalmed in a gulf of the West Indies, was informed that a large shark was swimming alongside. 1

looked over the bulwarks (he says) and there was the watchful monster winding lazily backward and forward like a long meteor, sometimes rising till its nose disturbed the surface, and a gushing sound, like a deep breath, rose through the breaker, at others resting motionless on the water as if listening to the sound of our voices, and thirsting for our blood. As we were watching the motions of the monster—Prince, the cook, a little lively negro, suggested the possibility of destroying it. Andersen uttered an incredulous “humph,” and I laughed outright, and asked Prince if he meant to engage him in single combat with his bush knife as the old Jamaica negro did the famous Port Royal Tom.* Prince laughed, and shook his head—“No, no, skipper, me give um a hot bellyful—make a brick hot in de stove and give um for nyam”—(eat.) I consented, and Prince forthwith commenced his culinary operations. They were simply to heat a fire-brick in the stove—wrap it hastily up in some old greasy cloths, as a sort of disguise, and then to heave it overboard. This was the work of a few minutes, and the effect was triumphant. The monster followed his hissing prey—we saw it dart after the brick like a flash of lightning, and gorge it instantaneously. Prince whooped and laughed with exultation, and hurrying up to the surly Spaniards, who took no sort of interest in the circumstance, congratulated them with a kind of sarcastic raillery on the prospect of “fresh fish for supper.” The shark rose to the surface almost immediately, and his uneasy movements soon betrayed the success of our manœuvre. His agonies became terrible. The waters appeared as if disturbed by a violent squall, and the spray was driven over the tafferell, where we were standing—while the gleaming body of the fish repeatedly burst through the dark waves, as if writhing with fierce and terrible convulsions. Sometimes also we thought we heard a shrill, bellowing cry, as if indicative of anguish and rage, rising through the gurgling of the waters. His fury, however, was soon exhausted. In a short time the sounds broke away into distance, and the agitation of the sea subsided. The shark had given himself up to the tides, as if unable to struggle against the approach of death, and they were carrying his swollen body unresistingly to the beach.

* Port Royal Tom was a large shark which long haunted the port of Jamaica, and was known to the natives by that cognomen.

THE BASKING SHARK.

THE body of this species is slender, measuring from three to twelve yards in length. It is of a deep lead colour above, and white beneath. The upper jaw is blunt at the end, and projecting considerably beyond the lower one. The mouth is situated below, and the teeth are small; the front ones much bent, and those behind are conical and sharp-pointed. There are five breathing apertures on each side of the neck; it has two dorsal, two pectoral, two ventral fins, and a small anal one.

This shark derives its name from the propensity it has of floating on the surface of the water, apparently basking itself in the sunbeams. It has not the ferocious disposition of its congener the white shark; and is of so gentle a disposition that it is said to allow mankind to approach, and even pat it while thus enjoying itself on the surface of the water.

The basking shark is not uncommon on the British coasts in summer, but does not visit us annually; paying visits in shoals at intervals of some years. They make their appearance about the Hebrides, and Frith of Clyde, about mid-summer, in small flocks of seven or eight, and sometimes only in pairs. They usually continue in our seas till the latter end of July, when they disappear.

These animals seem to live entirely on marine plants and some species of medusæ. They swim with great deliberation and so near the surface that their upper fins appear above the water. Sometimes they may be seen disporting about among the waves, and leaping several feet above the surface of the water.

This fish is eagerly sought after on account of the quantity of oil which it produces, and which is of an excellent quality. The natives of the northern parts of the kingdom are very dexterous in taking these sharks. They, to be sure, are rather an easy conquest, for they do not accelerate their motion till the boat comes almost in contact with them, when the harpooner strikes the weapon into their body, as near the gills as possible. As soon as they feel themselves wounded, they plunge headlong to the bottom of the sea, and frequently coil the rope round their bodies in agony, attempting to disengage themselves

from the fatal instrument by rolling on the ground. Discovering that these efforts are fruitless, they swim off with such amazing rapidity, that one instance has occurred of a basking shark towing to some distance a vessel of seventy tons burthen against a fresh gale. They sometimes run off with two hundred fathoms of line and two harpoons in their body; and will employ the men from twelve to twenty-four hours before they are subdued.

When they are killed, the fishermen haul them ashore; or, if at a distance from land, to the side of the vessel, where they cut them up and take out the liver; which is of immense size, and weighs often nearly a thousand pounds. From this a great quantity of oil is extracted, and the quantity produced even by a single liver has been sold for twenty pounds sterling: it in general yields eight barrels or upwards. The liver is the only useful part of the fish.

THE COMMON DOG FISH.

THERE is perhaps no species of fish more voracious than this animal, and they are altogether fearless of the human race. They have been known to follow vessels with much eagerness, seizing with avidity every thing eatable that was thrown overboard, and instances have been known of their seizing fishermen and others while bathing in the sea. However, their small size unfits them from being formidable as enemies; hence they are seldom able to resist powerful enemies by open force, and in their combats they often have recourse to stratagem. They conceal themselves in the mud, lying in ambush like the rays, until a favourable opportunity offers itself, when they make the attack. The usual food of the dog-fish is fish and other marine animals, of which they destroy immense numbers, having most gluttonous appetites. They are very troublesome to fishermen, frequently destroying their crab and lobster baits; and they are very often caught on the fishing lines.

On the coasts about Scarborough, where cod and haddocks are in great abundance, the fishermen say that vast numbers of these are destroyed by dog-fish, and that the latter make a line or semicircle so as to encompass a shoal of cod or haddocks, and

preserve this line for a considerable space of time, preying on their prisoners whenever they are hungry.

The dog-fish is an inhabitant of almost all climates, both hot and cold. It is found on the coasts of Britain, Norway, extending to the Cape of Good Hope, the Canary islands, and the coasts of America, and of those countries which lie immediately under the equinoxial line.

The flesh of this species is hard, dry, and of a very disagreeable flavour, somewhat like musk. That well known article in commerce called shagreen is manufactured from their skins. The dried skin is also used by cabinet makers and turners for polishing wood and ivory, and even sometimes iron. When the fishermen of Newhaven and the Fife coast, fall in accidentally with shoals of these fish, they make oil from their livers for domestic purposes.

The dog-fish frequently approach very near the shore to prey upon young coal-fish, called podlies in Scotland, and we have occasionally taken them with a line at Newhaven harbour, while fishing for podlies.

OF THE RAY TRIBE IN GENERAL.

THE bodies of all this tribe are broad, thin, and flat, the mouth is situated beneath, and the eyes on the upper surface of the head. The breathing apertures are five on each side, situated a little below the mouth. The head in general is small and pointed, and not distant from the body.

Rays and their congeners are entirely oceanic fish, and from being destitute of an air bladder to buoy them up, their chief residence is at the bottom of the ocean. They are viviparous, and seldom produce more than one at a time; which, as in the sharks, is inclosed in a four-cornered bag or shell, ending in slender points; but which are not filamentary like those of sharks. The liver of the ray tribe is large, and frequently produces a great quantity of oil.

In a fresh state most of this tribe have a strong and unpleasant smell, but nearly the whole of them are eatable. The skate is considered by far the best food of the different species of this genus; the thornback being next to it in quality, but greatly inferior in point of flavour and richness, except when very young, in which case it is more palatable.

From the anatomical examination of a colossal species of this genus by Professor Mitchell, called by him the Vampyrus, it appears that their great power of progression is owing to their cartilaginous formation. He describes this species as having a scapula, humerus, ulna, carpus, and an uncommon number of phalanges of the before mentioned cartilaginous structure. All these limbs or joints were articulated with each other; but the articulations, like those of the human sternum, had very little motion. From this articulated but fixed extremity, pro-

ceeded obliquely backwards seventy-seven rows of cartilage of different lengths, but of almost the same parallelism, and not at all radiated. They were all articulated, and the joints were very numerous. In the longest row they amounted to twenty-seven, and in the shorter ones proportionally fewer; the cartilages, with their articulations, were so alternated and diversified, that they, with the yielding and bending quality of the cartilage, were susceptible of all manner of flexion, and enabled the fish to assume all the attitudes requisite for its life and habits. In one of the pectoral fins, or what is equivalent to wings, the number of joints amounted to six hundred and twenty-three; from which some judgment may be formed of the vast variety of motions these organs are capable of performing, and how admirably they are adapted to connect strength with speed. We can hence understand why they fly so swiftly and powerfully through the water; why they can raise a spray, or foam, around them when they flap their fins on the surface; and how they are able, huge as they are, to gambol with agility, and even to leap out of the water for a considerable distance. The length of the animal which Professor Mitchell dissected, was ten feet nine inches from the margin of the head to the root of the tail,—the breadth from one extremity of the pectoral fin to the other, measuring along the line of the belly, was sixteen feet.

THE BANKSIAN RAY.

SIR JOSEPH BANKS informs us that the *Raia Banksiana*, which he found in the West Indian seas, is sometimes so large that it requires seven train of oxen to drag it along the ground. A species of ray, probably nearly allied to the *Banksiana*, was killed on the coast of America in 1823, the capture of which is thus described by Mr Mitchell of New York, in a letter to the president of the New York Lyceum of Natural History.

“On the 9th day of September, 1823, returned from a cruise off Delaware bay in the fishing smack *Una*. She had sailed about three weeks before from New York, for the express purpose of catching an enormous fish, which had been reported to frequent the ocean a few leagues beyond Cape Henlopen. The

adventurers in this bold enterprise have been successful. The creature is one of the huge individuals of the family of Raia, or perhaps may be erected, from its novelty and peculiarity, into a new genus, between the *Squalus* and the *Accipenser*. Its strength was such, that after the body had been penetrated by two strong and well formed gigs of the best tempered iron, the shank of one of them was broken off, and the other singularly bent. The boat containing the fishermen was connected, after the deadly instrument had taken hold, with the wounded inhabitant of the deep by a strong warp or line. The celerity with which the fish swam could only be compared to that of the harpoonet whale, dragging the boat after it with such speed, as to cause a wave to rise on each side of the furrow in which he moved, several feet higher than the boat itself. The weight of the fish after death was such, that three pair of oxen, one horse and twenty-two men, all pulling together, with the surge of the Atlantic wave to help, could not convey it far to the dry beach. It was estimated from this (a probable estimate) to equal four tons and a half, or perhaps five tons. The size was enormous; for the distance from the extremity of one wing or pectoral fin to the other, expanded like the wing of an eagle, measures eighteen feet; over the extremity of the back, and on the right line of the belly, sixteen feet; the distance from the snout to the end of the tail, fourteen feet; length of the tail, four feet; width of the mouth, two feet nine inches. The operation of combat and killing lasted nine hours. The achievement was witnessed by crowds of citizens on the shores of New Jersey and Delaware, and by the persons on board the flotilla of vessels in the bay and offing. During the scuffle, the wings, side-flaps, or vast alated fins of the monster lashed the sea with such vehemence, that the spray rose to the height of thirty-feet, and rained around to the distance of fifty feet."

In the month of February, 1824, the following interesting account of the capture of the SEA DEVIL, was communicated to Professor Jameson by Lieutenant Lamont of the 91st regiment, then stationed at Port-Royal, Jamaica, and affords a striking proof of the amazing strength of these colossal animals.

"The first appearance of an animal of this species, since I have been here, (about eighteen months,) was about two months ago, when I was called out to the beach by some of the inhabi-

tants, whom I found, on going there, to be assembled in great numbers, to see what they called the *Sea Devil*. I confess my curiosity was not less excited than theirs, when I saw floating close to the surface of the water, about twenty yards from me, a large mass of living substance of a dark colour, but of the shape and size of which I could not, at the time, form any proper idea, it being so very different from what I had ever before seen or heard of, farther than that I supposed it to have been many times the size of what I now believe it was. No time was lost in setting out in pursuit of him, with harpoons, &c.; and it was not long before he was come up with, and struck with one of the harpoons, when he made off with great velocity, towing the boat after him. As he seemed to incline chiefly to the surface of the water, six or seven more harpoons were (with the assistance of several canoes that had come up) successively plunged into him, and all the boats made fast to each other, which he was obliged to pull after him, with several people in each. Such, however, was the great strength of the animal, that, after being fast in the manner I have described, for upwards of four hours, and taking the boats out to sea attached to him to a distance of about ten miles from the harbour, and having been pierced with so many wounds, he was still able to defy every effort to bring him in. It had now got late, and was dark, and an attempt was made to force him up near enough to get another large harpoon into him, this was no sooner done, than he darted off; and by an almost unaccountable and seemingly convulsive effort, in a moment broke loose from all fetters, carrying away with him eight or ten harpoons and pikes, and leaving every one staring at his neighbour in speechless astonishment, confounded at the power of the animal which could thus snatch himself from them at a time when they conceived him almost completely in their power.

“ Since then some of these animals have occasionally been heard of at a distance from the harbour; and, a few days ago, in coming over from Port Augusta with another gentleman, we fell in with one of them, which allowed us to get so near him, that it was determined to set out the next morning to look for him. We did so; and took with us several large harpoons, muskets, pikes, &c., determined, if it were possible, to bring him in. He was descried about eight o'clock near Greenwich, towards the top of the harbour, as usual floating near the sur-

face, and moving slowly about. Having allowed the boat to get very close to him, he was struck with a harpoon, which was thrown at him in a most dexterous manner by Lieutenant St John, of the royal artillery. He immediately set out towards the mouth of the harbour, towing the boat after him with such velocity, that it could not be overtaken by any of the others. After going on this way for near an hour he turned back, which enabled the other boats to lay hold; and four of them were tied, one after the other, to the one in which he was harpooned, with four or five people in each of them. By this means we hoped to tire him out the sooner. In about an hour and a half after he was first struck, a favourable opportunity offering, a large five-pointed harpoon, made fast to a very heavy staff, was thrown at him with such an elevation, that it should fall upon him with the whole weight of the weapon—this having been as well directed as the first, was lodged nearly in the middle of his back. The struggle he made at this time to get away was truly tremendous,—plunging in the midst of the boats,—darting from the bottom to the surface alternately,—dashing the water and foam on every side of him,—and rolling round and round to extricate himself from the pole. This might be considered as having given him the *coup de grace*, although, at short intervals afterwards, he was struck with two more harpoons, and several musket balls were fired into him. Still he was able to set out again, taking the four boats after him, which he carried along with the greatest ease. Having gone in this way for some time he came to a stop, and laid himself to the bottom, when, with all the lines that were attached to him, it was quite impossible to move him. All expedients were nearly beginning to fail, when it was proposed to slacken the lines, which being done had the desired effect, and he again set out. Having thus got him from the ground, inch by inch was gained upon him, till he was got near the surface, when he was struck with two large pikes. He now got rather faint; and the boats closing on him on every side, the combat became general with pikes, muskets, and every weapon we had. In fact, to such a pitch were all excited on the occasion, that, had a cool spectator seen the affray, he would undoubtedly have imagined that it was his *sable majesty* himself that we had got amongst us. He was now towed ashore, being about five hours since he was first struck. This it required all

the boats to do, and then but very slowly. His appearance now showed the extraordinary tenacity of life of which this animal must be possessed, as his whole body was literally a heap of wounds, many of which were through and through, and he was not yet quite dead. This circumstance, with his great strength, is the cause of the name which has been given him by the fishermen here, as they have never been able to succeed in taking one of them, and were firmly of opinion it was impossible to do so.

“ On measurement, it was found to be in length and breadth much the same, about fifteen feet, and in depth from three to four feet. It had the appearance of having no head, as there was no prominence at its mouth; on the contrary, its exterior margin formed, as it were, the segment of a circle, with its arc towards the animal's body, and opening into a large cavity of about two feet and a half in width, without teeth, into which a man went with so much ease, that I do not exaggerate when I say, that another might have done so at the same time. On each side of the mouth projected a mass of cartilaginous substance like horns, about a foot and a half long, and capable of meeting before the mouth. These feelers moved about a great deal in swimming, and are probably of use in feeding. On looking on this animal as it lay on the ground with its back upwards, it might be said to be nearly equal in dimensions on every side, with the exception of the two lateral extremities, extending to a point about four feet from the body, and a tail about five feet long, four and a half inches diameter at the root, and tapering to a point. Above the root of the tail was the dorsal fin, and on each side of it a flat and flabby substance close to the body, of the appearance of fins. There were no other distinct fins, and its sole propelling power seemed to be its two lateral extremities, which became very flat and thin towards the point. As it shows these much in swimming, it gives a spectator an extraordinary idea of its size, as, to him imperfectly seen, the conclusion naturally is, if the breadth is so great, how much greater must the length be. This animal was a female, and was viviparous. On opening it, a young one, about twenty pounds weight, was taken out, perfectly formed, and which had been preserved. Wishing to know what it fed upon, I saw the stomach opened, which was round, about eight inches in diameter, and quite empty. It was closely

studded over with circular spots of a muscular substance. Under the stomach was a long bag, with transverse muscular layers from end to end, and which contained nothing but some slime and gravel. This muscular appearance of the digestive organs would lead one to suppose that it fed upon other fish, as is the general opinion here, though its having no teeth does not support that idea. Its weight was so great that it was impossible to ascertain it at the time; but some idea may be formed of it when I assure you that it was with difficulty that forty men, with two lines attached to it, could drag it along the ground. Its bones were soft, and, with the exception of the jaw-bones, could be cut with a knife. One ridge of bone ran from the mouth to the middle of the back, where it was met by another running transversely, from the extremities of which there were two larger ones converging towards the tail."

THE TORPEDO.

THE torpedo sometimes reaches the weight of seventy or eighty pounds. It is nearly of a circular form, four inches thick in the middle, and attenuating to extreme thinness in the edges. The skin is smooth, of a dusky brown colour above, and white underneath. The ventral fins form on each side, at the end of the body, nearly a quarter of a circle. The tail is short, and the two dorsal fins are placed near its origin. The mouth is small, and, as in the other species, there are on each side below it five breathing apertures. The most extraordinary part of this animal is its electrical apparatus, which consists of a series of tubes situated on each side of the head and thorax, and which, on being touched, conveys a shock resembling that of a galvanic pile.

This species is found in almost all the European seas, and is occasionally to be met with on the British coasts. The poet Oppian has described the properties of this fish, but has assumed a license, more poetical than true, that of ascribing to it the power of being able to benumb fishermen through the entire length of their line and rod; the description is as follows:—

The hook'd Torpedo ne'er forgets his art,
But soon as struck begins to play his part;

And to the line applies his magic sides :
Without delay the subtile power glides
Along the pliant rod and slender hairs,
Then to the fisher's hand as swift repairs ;
Amaz'd he stands, his arms of sense bereft,
Down drops the idle rod, his prey is left :
Not less benumb'd than had he felt the whole
Of frost's severest rage, beneath the Arctic pole.

THE FIRE-FLARE.

THE sting ray or fire-flare is nearly round ; its body is smooth, and its nose sharp-pointed ; the mouth is small, and furnished with blunt or granulated teeth ; the upper parts are of a dingy yellow, but somewhat lead coloured towards the middle ; the tail tapers to a slender point, and is furnished on each side with a sharp, brown, and serrated spine.

With this spine it is probable that the animal not only wounds its enemies, but those animals likewise which are destined for its food.

The Fire-flare's tail the venom'd shaft contains,
Nor time nor waste the poisonous treasure drains ;
Murd'rous alike they ravish all the sea,
First give the mortal wound, then seize the prey.

We are but yet acquainted with seven species of electrical fishes, namely, five species of torpedos, and the *Tetraodon electricus*, and *Gymnotus electricus*.

THE LAMPREY AND ITS CONGENERS.

LAMPREYS have mucous and slippery bodies. Three of the species exclusively inhabit fresh waters, and one only—the *Petromyzon Marinus* of Linnæus—inhabits the sea, ascending fresh waters to deposit its spawn. They are all highly esteemed as food ; they are very tenacious of life ; the head will adhere firmly to stones, after half of the body has been cut off. Their principal food consists of worms, insects, small fish, and aquatic plants.

The firmness of their adhesion arises from their drawing up the middle of their circular mouth, and thus exhausting the air from under it. The edges of the mouth are thus pressed closely down to the object by the weight of the super-incumbent atmosphere.

Although the lamprey is possessed of this formidable mouth, and feeds on animal substances, yet it is never known to attack the larger species of fish, to which it might prove a troublesome assailant from this sucking faculty. The teeth of the lamprey are not fixed in their bony jaws, and are consequently incapable of offensive operations against larger fish. It usually weighs from four to five pounds.

OF STURGEONS IN GENERAL.

ALL the species of sturgeon inhabit the sea ; and are found in the vicinity of both the American and European continents. They are all large animals, and seldom grow to less than four feet in length ; are generally reckoned delicious food, and are a valuable article of commerce to different northern nations. They feed upon small fish, marine worms, and molluscous animals. Their gills are cartilaginous.

THE COMMON STURGEON.

EARLY in spring sturgeons leave the deep parts of the ocean, and go to water rivers for the purpose of spawning : the American rivers abound with them from May to July. In these situations they are frequently known to leap to the height of several yards out of the water, in an erect position, falling on the surface again on their sides with such noise, as to be heard in still evenings at a great distance. It not unfrequently happens that they fall into the canoes of the Indians and sink them ; on which account it is often dangerous to pass the places which are much frequented by them, as many instances have been known of persons losing their lives by this means. The Indians sometimes take advantage of this propensity for leaping, and catch them in large boats as they descend.

They are so abundant in some of the rivers of Virginia, that three hundred have been taken in a day by means of a long pole

with a hook attached to it. This is put down to the bottom, and when a fish is felt by rubbing it against them, it is immediately drawn up. Another method is to use torches of the wood of the white pine, and the fish being attracted by the glare of light, become motionless, and are easily killed with harpoons. Sturgeons which having been wounded by the spears, and not taken at the time, have afterwards died, and are often found dead on the shores.

Fishing for sturgeons during the day is frequently practised by the Indians in the lakes. Two men go together in a canoe; one of whom sits at the stern to work it forward, while the other sits at the head with a pointed spear, from twelve to fourteen feet long, fixed to a long cord that is fastened to one of the cross timbers of the canoe. As soon as a sturgeon is observed within reach, the spear is struck into the tenderest part of the body, which, if it penetrates, the fish swims off with great velocity, dragging the canoe after it. But if struck in a vital part, the fish seldom is able to proceed more than a few hundred yards before he dies; when the line is drawn up and the fish taken.

Sturgeons sometimes ascend the rivers of Britain, but very rarely. Not long ago one was taken in the river Esk, and, in announcing the fact, some of the newspapers committed a diverting typographical blunder:—"Yesterday, a fine fat *Surgeon* was taken in the river Esk. He weighed 460 pounds, and was immediately cut up, salted, and pickled for the Edinburgh market."

The fecundity of the sturgeon is very great. We are informed by Catesby that the females frequently contain a bushel of spawn each; and Leewenhock counted the roe of one of them which contained 150,000 eggs.

OF SPINOUS FISHES.

THE SWORD FISH.

This fish has his name from his long snout resembling the blade of a sword. He sometimes weighs above 100 pounds, and is 15 feet in length. He often attacks the whale, and buries his weapon in its side. Sometimes two join against the whale, in which case the latter is generally killed.

Scoresby mentions a curious circumstance of a vessel arriving at Liverpool, with the sword of this fish stuck fast in its hull. He says, "a vessel which arrived at Liverpool about a year ago, (1819, the *Kitty*, Captain Hodson) from a voyage to the coast of Africa, after being put into the grooving-dock for the purpose of receiving some repairs, was found to be perforated through the bow by a hard bony substance. This substance, probably a part of the rostrum of a xiphias or sword-fish, had penetrated through a solid part of the vessel, where the thickness in timber and planks was twelve inches of sound oak. The shattered end of the bone was visible on the outside, and the smaller extremity appeared within the ceiling. The latter part being observed by a carpenter, who mistook it for a trenail, he struck at it a blow with a mallet, by which a portion of the tip was broken off. Finding it to be something curious, he pointed it out to Messrs J. and R. Fisher, shipbuilders, the owners of the vessel, who caused it to be taken out. The position of the bone was at the distance of four feet horizontally from the stern, and two feet below the surface of the water when the vessel was afloat. Hence, it appeared, that when the ship had been in rapid progress through the water, she had been met with and struck by a sword-fish advancing in an opposite direction, by the shock of which, or by the action of the water forced past the body of the animal by the vessel's progress, the snout had been broken off and detached. The blow, though it must have been singularly

forcible, was not observed by any person in the ship. Had the bone been withdrawn the vessel would probably have foundered. The substances through which it had penetrated were a sheet of copper, an oak plank two and a half inches in thickness, a solid oak timber of seven and a half inches, and another plank also of two inches. The bony substance is fifteen and a half inches in length, two and a half inches greatest diameter, and weighs one pound two ounces. It is nearly cylindrical at the point, but considerably compressed towards the root. Most of the surface is rough, the colour gray, the fracture splintery. The roughness, which extends all round the bone to the distance of five or six inches from the point, and indeed all over it, excepting a part of the surface, consists of minute tubercles or denticles, imbedded in a substance having the appearance of an incrustation of the thickness of a shilling. Some of these tubercles are wanting, but their cavities remain visible. Whether these tubercles are natural to the substance on which they are found, or whether they are the incrustation of a species of serularia, I had not an opportunity of determining. That part of the surface which is free from any denticles appears of a fibrous bony texture. The broken extremity is hard, white, and splintery in the fracture. In the interior of the bone are four angular perforations, running longitudinally almost as far as the very tip; they are from one fourth to one fifth of an inch in their largest diameter."

This fish is sometimes cast ashore on our coasts. The following is an account by Mr Edward Milligan, of one thrown ashore in Scotland, in 1821:—

"The present summer has been remarkable for the number of large and strange fishes which have been thrown upon our coasts, particularly those washed by the Irish sea. Perhaps the most remarkable of these is the sword-fish, the *xiphias gladius* of Linnæus, which was thrown on the coast of Sirkbean, a small maritime tract situated immediately behind that formidable barrier of shallows and sandbanks which protect the western alluvial borders of the Solway Frith from the incursions of its ancient possessor, the ocean. This fish measured ten feet in length, and four feet and a half round the thicker part of the body. The sword, or rostrum, which is the most interesting part of this animal, measured three feet three inches.

in length; and different from those specimens commonly exhibited or described, resembles in a remarkable manner the common diamond sword worn by serjeants of infantry, only its proportions at the root are more uniform, the whole figure being that of an acute isosceles triangle, whose vertical angle is $4^{\circ} 42'$; —for its greater section is nearly a rhomboid, whose respective sides are 17, 5.33: which last number in its transverse dimension or breadth at the same place is 1.10th of an inch. His thickness was 3.1 inches; its greatest breadth 3.3 inches; and its weight 25 ounces, or 1 lb. 9 oz. avoirdupois.

“ The part where the rostrum had been attached to the frontal bone is somewhat softer than the rest, though approaching more nearly to the colour and surface of bone. Internally, however, the appearance is splintery, with parallel fibres, and colour much resembling hiccory. Towards the apex, it becomes more and more solid, and its edges are almost perfectly transparent, and might pass for a deposition of calcareous-spar. They are, indeed, easily scratched with a knife, and yield a white streak, but do not effervesce with acids. The point, which does not exceed one-twentieth of an inch in breadth, is likewise, though less perfectly, transparent. It is penetrated for at least eighteen inches of its length by four canals. These are half an inch wide at their commencement, and gradually disappear in solid bone. Their use is probably to receive nerves for the purpose of sensation, as the whole bone seems possessed of a strong vibratory power, and when the nasal end of it is held close to the ear, the slightest touch on the other extremity is instantly perceived. The stethoscope of M. Lænnec rather diminishes than increases this interesting effect. Whoever considers the dimensions and exquisite mechanical aptitude of this dreadful weapon, more especially when sped with the almost electrical velocity of a fish ten feet long, and nearly half a ton weight, will have little difficulty in conceiving the effect described by Mr Scoresby. The rostrum there described could only have been twenty-eight inches in length, or almost one half less than the one we are now describing; yet the fish had driven it through the bow of a vessel, where the thickness in timber and planks was twelve inches of solid oak, besides a sheath of copper. The violence of the shock, however, seems to have broken off the rostrum close to the os frontis. It is

very thin there, not one thirtieth of an inch, and though Galileo has shown that matter disposed as here in a hollow cylindrical form is stronger than when solid, this only obtains in the case of pressure exerted at a distance from the point of resistance; for it must be proportionally weaker, in the event of a shock or oscillation, which, in the instance supposed, would undoubtedly be tremendous. However, the rostrum described by Scoresby was cylindrical; that above described is flat, but sloping from a regular angle of one hundred and forty-one degrees in its middle to a moderately blunt edge on each side. This bevelment is most remarkable on the upper surface, while the lower is marked by two corresponding lines, not sharp but rounded. A small suture may be observed on both surfaces, continued from the frontal bone to within six inches of the point, and dividing the rostrum into two equal parts." We have been thus particular in giving all that is known respecting one of the most formidable of natural weapons.

A specimen of the common sword-fish was found on a sand-bank in the Tay, in the end of August 1824, and sent to the Rev. Dr Fleming of Flisk. It was upwards of six feet in length, exclusive of the sword, which was two feet and a half.

THE GUDGEON.

This fish is excellent food, being of a fine flavour, and easily digested. In many of the Continental rivers this fish abounds, and is taken in great numbers in the months of September and October, and affords a plentiful supply to the markets. They are taken both with nets and lines.

The gudgeon feeds on aquatic plants, worms, the larvæ of water insects, and voraciously devours the spawn of fish. They swim in small shoals, and inhabit parts of rivers where the water runs smooth, or in gentle streams, over a gravelly bottom; and in still water they are to be found amongst aquatic plants, in which situations they are caught by a barrel or basket, which is open at both ends, being plunged into the river and then taken by the hands. Another method is to cut two pieces of the white thorn, and fixing them at right angles, attach them

to a piece of packthread, (having previously put on them a worm,) and fasten the other end to a stick, which they hang over the stream. In a stream within five or six miles of Norwich, they are fished for in this manner; and the poor people sometimes make as many as a hundred of these fishing sticks, and seldom fail to come off with a plentiful supply.

The gudgeon breeds twice or thrice a year; it is a finely shaped animal, of a silvery hue, the body and tail beautifully spotted with black.

OF THE MACKEREL TRIBE.

ALMOST all the species of mackerel associate in large shoals. Some of them are migratory, and make long excursions at certain seasons of the year. The whole tribe are considered delicious food, and are consequently in great request.

THE COMMON MACKEREL.

The mackerel is a very beautiful fish when fresh taken out of the water, but soon loses its vivid tints by exposure to the atmosphere; is more liable to rapid decomposition than almost any other species of fish; and from the peculiar tenderness of its flesh cannot easily be transported to a distance without the danger of rendering them unfit for use.

Mackerel fishing is considered by some a very pleasant amusement; and it has this attraction, that where an extensive shoal is met with they are an easy capture and may be taken by a bit of red cloth as a bait, or even one of their own tails; and if there is any ruffle on the surface of the water they take with much avidity. It is necessary that the boat should be in motion in order to drag the bait along near the surface of the water. In some parts of the west coast of England, mackerel fishing is carried on to a great extent, so much so that a capital of nearly 200,000 pounds is employed in the speculation. The fishermen go out several leagues from the shore, and stretch their nets, which are sometimes several miles in extent, across the tide during the night. The meshes of their nets are sufficiently large

to admit of the heads of the tolerably large fish, and running against them their heads go through the meshes and are taken by the gills. During one night's fishing a single boat has been known to bring on shore a cargo of seventy pounds value. Another mode of catching mackerel is practised in the west of England, with what is termed a *ground sieve*. A roll of rope about two hundred fathoms in length, with the net fastened to the end, is tied at the other to a post or rock on the shore. The boat is then rowed to the extremity of this coil, when a pole fixed there, heavily loaded at the bottom, is thrown overboard. The rowers from thence make as nearly as possible a semicircle, while two men continue to put the net into the water, in a regular manner. When they reach the other end of the net, where there is another loaded pole, they throw that overboard. Another coil of rope, similar to the first, is by degrees thrown into the water, as the boatmen make for the shore. The boat's crew now land, and, with the assistance of persons stationed there, haul in each end of the net till they come to the two poles. The boat is then pushed off towards the centre of the net, in order to prevent the more vigorous fish from leaping over the corks. By these means, three or four mackerel are often taken at a haul.

Cavier is made from the roes of mackerel in the Mediterranean. The first operation is to remove the blood and slime by washing them with vinegar: they are then spread out in the open air, for a short time, to dry, and afterwards salted and hung up in a net, to drain any moisture from them, which may remain. After which they are placed on a kind of sieve, until thoroughly dry and fit for use. Pickling of mackerel is much practised on the Continent, and used to be frequently done also in Cornwall. It was from this fish that the celebrated pickle of the Romans, called *garum*, was made.

The mackerel is one of the most voracious of all fishes; and when they get among a shoal of herrings, they make such havock as frequently to drive it off the coast. Pontoppidan informs us that a sailor, belonging to a ship lying in a harbour of Norway, went into the water to wash himself, when he was suddenly missed by his companions. In the course of a few minutes, however, he was seen on the surface with vast numbers of mackerels fastened to him. The people went to his assistance

in a boat, and tore the fishes from him ; but it was too late, for he very shortly afterwards expired from the effects of the manner in which he was torn and from the loss of blood.

The mackerel is a very prolific fish ; the females deposit their spawn among the rocks near the shore, about the month of June. Their eyes are covered with a white film in the spring, which grows in the winter, and is cast in the beginning of summer. In this state they are said to be nearly blind.

Mackerels die almost as soon as they are taken out of the water, and for a short time afterwards exhibit a phosphorescent light.

OF THE CHÆTODON TRIBE.

THIS genus consists of numerous species, but one of them only has been well described. The head and mouth of this genus are small, and they have the power of protruding and contracting the lips so as to convert it into a circular orifice. The teeth are for the most part bristle-shaped, flexible and moveable, closely set and extremely numerous; there are from three to six fangs in the gill-membrane: the body is broad, compressed and scaly; the dorsal and anal fins being generally terminated by prickles.

THE BEAKED CHÆTODON.

This fish is of a whitish or very pale brown colour, having generally four or five blackish bands running across the body, which is of an ovate and compressed shape: it has a lengthened cylindrical snout; with very large dorsal and anal fins, and on the former there is a large eye-like spot; it is six inches in length. The flesh is white and has an agreeable taste

The beaked chætodon has also been termed the shooting-fish, and inhabits the shores and mouths of the Oriental rivers, of the islands as well as the main land.

The principal food of this species is flies and other insects, that hover over the waters which it inhabits; and the mode in which it takes its prey is strikingly curious. When it notices a fly at a distance on any plant in the shallow water, it approaches very closely, and with the greatest caution, coming as much as

possible perpendicularly under the object: then placing its body in an oblique position, with the mouth near the surface, it remains immoveable for a moment; and having fixed its eyes directly on the insect, it shoots at it a drop of water from its tubular snout, but without showing its mouth above the surface, from whence only the drop seems to rise. This is done with so much adroitness, that although at the distance of four, five, or even six feet, it seldom fails to bring the insect into the water. Although this operation has been very closely watched by the most attentive observers, yet none of them have been able to detect the mouth above the surface of the water; and yet the fish has been seen to eject several drops of water, the one after the other, without quitting the place, or the slightest motion of its body been observable.

M. Hommel, governor of the hospital at Batavia, had heard of the remarkable manner this fish had of taking its prey, and determined on having ocular demonstration of the fact. He requested that a large tub might be filled with sea-water, and had some chætodons caught and put into it, taking care to have the water changed every other day, that it might be perfectly fresh, so as not to impair the faculties of the fishes. When they had been fairly reconciled to their confinement, he then tried the experiment of presenting them with an insect. He fastened a slender stick with a fly attached to the end of it, and so placed that the fish might strike it, and had the gratification of proving what he at first disbelieved; as every day these fish exercised their skill in shooting at insects, and that with surprising force, and so well directed that they seldom missed their aim.

OF THE PERCH TRIBE.

THERE are nearly sixty species of perches, five of which are natives of the British rivers and lakes, and these are subject to considerable variety. The ancients were only acquainted with three different species of this genus. Perches are remarkable for their voracity, and their great muscular power, and are possessed of much bodily activity. If caution is not used when they are taken in the hand, they inflict considerable wounds by erecting the spines of their first dorsal fin, and force them into the hand of the unwary with considerable power.

The whole of this genus have jaws of unequal length, and are furnished with sharp-pointed curved teeth. There are seven rays in the gill-membrane; the cover consisting of three plates, the uppermost of which is serrated. The scales covering the body are hard and rough.

THE COMMON PERCH.

The perch is one of the most voracious of all fresh water fishes, so much so, that they even attack and devour each other, and this is the more remarkable as they associate in large shoals, and other animals which are gregarious never devour their own species.

This fish grows very slowly and seldom attains any great size. The largest which we have heard of being taken in this country, was caught in the serpentine river, Hyde Park, and weighed nine pounds. Their ordinary weight is from half a pound to two pounds.

A curious variety of the perch inhabits the lakes at Loch-

maben, Dumfriesshire. It grows to a considerable size, some having been taken nearly two feet long.

The perch frequents clear swift running rivers, whose bottoms are pebbly or gravelly, and also those which have a sandy or clayey soil. They also inhabit lakes, and will thrive very well in ponds, where they generally shelter among reeds or under deep banks, or beneath the roots of trees.

This fish is very tenacious of life, and has been known to survive a journey of sixty miles packed in straw.

Perch and pike are known to be frequent inhabitants of the same rivers, lakes, or ponds. The perch bids defiance to this powerful and voracious enemy, by erecting its spines, and no fish will venture to prey upon it, in consequence of its formidable mean of defence. Fishers, however, use young perch in pike fishing, after having cut off the spines.

From its great voracity, the perch is an easy caught fish, as it will take almost any kind of bait. Perch fishing continues from April to January; the best hours are from sunrise till ten o'clock, and from two o'clock till sunset. They can, however, sometimes be taken during the whole day. They have so little timidity about them, that we have known them to approach close to our limbs while standing in the water fishing for them. But should a fish escape which has been hooked, he will make a rapid retreat followed by the whole shoal. The perch is said to be very abstemious during winter; and one thing is certain that he is more difficult to take in cold weather. We have, however, frequently taken perch in the middle of winter, when the sun shone clear, and the air was not too cold.

This fish is exceedingly prolific; a single female has been known to spawn 280,000 ova, betwixt the months of February and May.

The Romans considered this fish as a great luxury, and perch in consequence kept in all their lakes and ponds. When pretty large the flesh of perch is very firm, and of a pleasant flavour.

In Monmouthshire there is a variety of the perch with a kind of haunch on its back; those at Lochmaben have a tendency to this form. In the pool in which they are found in Wales, the ordinary kind is also common; this variety does not appear to be accidental, as it is also found in some of the Alpine lakes of Sweden.

OF SURMULLETS IN GENERAL.

THE head of the fishes composing this genus is compressed, slanting, and covered with scales : the eyes are approximate, oblong, and vertical ; both jaws and palate are furnished with teeth ; and the gill-membrane has three rays ; the body is round, long and covered with large scales, which are so slightly attached that they easily drop off.

Surmullets were held in high estimation both by the Greeks and Romans, and could only be bought by the rich and luxurious. Pliny only mentions two species of these fish, one of which he says feeds on living animals, and the other on marine plants, but a physiological examination of the surmullets leads us to the conclusion that his latter assertion is erroneous. The British seas produce two species, and it is known that they subsist on other fish, as well as testaceous and crustaceous animals. They all inhabit the ocean.

From the earliest times the Greeks have been much accustomed to the use of fish as food, and they continue their predilection for it to the present day. In the Gulph of Patrasso, they practise a singular mode of taking fish by diving. The diver being provided with a rope made of a species of long grass, which floats near the surface, has only to move his canoe where he perceives there is a rocky bottom ; this done he throws a rope out so as to form a tolerably large circle ; and such is the timid nature of the fish, that, instead of rushing out, it never attempts to pass this imaginary barrier, which acts as a talisman, but instantly descends, and endeavours to conceal itself under the rocks. Having waited a few moments till the charm has taken effect, the diver plunges downwards, and not unfrequently returns with four or five fish, weighing from two to six pounds each. As they seldom find more than the heads con-

cealed, there is the less difficulty in bringing forth their rich prizes ; and when the harvest is good, the divers are so dexterous that they have a method of securing three or four fish under each arm, beside what they can take in their hands.

THE RED SURMULLET.

The head of the red surmullet is large, broad, and compressed at the sides, with two cirri, or beards, near the extremity of the under jaw. They are in general eight or nine inches long ; the body is thick in front, compressed, and covered with large scales ; the back and sides are red, the belly of a silvery metallic hue, and the fins yellow.

This fish forms a delicious food, and is at the same time very beautiful in appearance. In the glory of the Roman empire the surmullet sold at an enormous price. We are told by Pliny that a Roman consul on one occasion paid a sum nearly equal to sixty-five pounds sterling for a single fish ; and Suetonius tells us that one of the emperors purchased three for 30,000 sesterces, or about two hundred and forty-two pounds sterling, such was the height of absurdity to which that people went in the luxuries of the table, previous to the dissolution of the empire.

The red surmullet is common both in the Bosphorus and Black sea, and consequently the markets at Constantinople are plentifully supplied with them. In the Crimea this fish is called the sultan fish, in consequence of the esteem they are held in by the people of that country.

The red surmullet is a very voracious fish, preying on almost every living animal which it has the power of conquering. It frequents the sea coast in extensive shoals. The flesh is white, firm, highly flavoured, and is said to be of very easy digestion. The head and liver were the parts most esteemed by the ancients.

OF GURNARDS IN GENERAL.

THIS tribe is called the *Grondius* or Grumblers, from a singular kind of noise they make when taken out of the water, by expelling their internal air by compression; in Scotland they are termed the crooner.

The head in the gurnards is large, and covered with strong bony plates; the eyes are large, round, and vertical, appearing too big for the size of the fish; the mouth is large, and the palate and jaws provided with sharp teeth. There are seven rays in the gill-membrane; the back is furnished with a longitudinal, spinous groove on both sides: there are slender articulated appendages on each side of the pectoral fins.

THE RED GURNARD.

THIS species is, in general, about eighteen inches in length, and sometimes grows so large as two feet; the extremity of the head in front is provided with three short spines on each side the forehead and gill covers are silvery, and the latter covered with fine radiations; and at the end of each there is a long sharp and strong spine, and another beneath these immediately above the pectoral fins; the body is covered with small scales; the upper parts being of a deep red, spotted with white and yellow, and sometimes with black; the lower parts are of a fine silvery metallic hue. The lateral line is composed of large rough scales, silvery in the middle, and white at the edges.

The gray gurnard approach the shore in large shoals in the

months of May and June, for the purpose of depositing their spawn in the shallows. They occasionally visit the British coasts. Their chief residence is in the depths of the ocean, where they have a plentiful supply of food, such as crabs, lobsters, and testaceous shell fish.

The flesh of this fish is white, firm, and good, although not remarkable for its fine flavour. This is a beautiful fish while in the water, its colours being brilliant, and in beautiful modifications, more especially while under the glare of sunshine, in which case they are subject to great variation, from every different motion.

OF THE DOREE TRIBE IN GENERAL.

THE seas of Europe and America afford about eight species of Dorees ; one species only inhabits fresh water, and is found in the rivers of India ; it is said to spout water on insects in the same manner as the beaked chaetodon.

THE JOHN DOREE.

THIS species inhabits the British channel, the Mediterranean, and Atlantic ocean. It is a voracious species, preying on small fish, which it pursues with great keenness ; and it will indiscriminately seize any kind of bait. The doree is provided with numerous strong teeth, and a longitudinal row of stiff spines reach along each side of the dorsal fins, and likewise from the mouth all the way to the second anal fin. These are for the purpose of protecting it from its enemies of the deep.

The John Doree was well-known to the ancients, and is particularly mentioned in the writings of both Pliny and Ovid. Many persons suppose that it was from the mouth of this fish that the apostle Peter received the command of our Saviour to take the tribute-money ; this is imagined to be indicated by the black finger-like mark on each side of the head. On the coasts of France on the Mediterranean, it is called *le poisson de Saint Pierre* ; and on the coasts of Italy, *Pesce San Pietro* ; and the Germans call it *St Peter-fisch*. It is the haddock which the people of Britain suppose to be the fish of St Peter.

When taken alive out of the water the John Doree compresses the internal organs so rapidly, that the air in its passage through the gills produces a kind of noise, something like that of the gurnards.

OF STICKLEBACKS.

THERE are many species of this genus ; these are dispersed over various parts of the world, some of them inhabiting fresh water, such as inland lakes, rivers, and ditches, and others are entirely confined to the ocean.

The head of the sticklebacks is somewhat oblong and smooth, having the jaws provided with small teeth ; the gill-membrane has either three, six, or seven rays ; the body is keel-shaped towards the tail, and covered with bony plates ; the back is armed with several sharp spines, which are situated betwixt the dorsal fin and the head.

THE THREE-SPINED STICKLEBACK.

THIS species is very common in our rivers, and seldom exceeds two inches in length ; the back is provided with three sharp spines, which serve as their weapons of defence and offence, and they are always erected when in dread of an enemy, or when about to attack another fish. This fish is olive green above, and silvery white beneath ; the lower jaw and belly are crimson in some individuals.

Although this fish is of diminutive size, yet its voracity is surprising ; and it proves exceedingly destructive to the spawn of all fresh-water fishes. Mr Anderon of Norwich kept a three-spined stickleback in a glass, which he fed upon young dace ; and in the space of five hours one day, it devoured seventy-four young dace, of about an inch and a half in length, and of the thickness of a horse-hair, and he has no doubt but it would have taken as large a meal every day had he offered it. He put it into a glass jar of water with sand at the bottom so that he might watch its habits and make some ex-

periments on it. It refused to eat for some days ; but by giving it fresh water and seeing it frequently, it at last was prevailed on to take some small worms, which he put into the jar, and at length became so tame as to take them from his hand. It soon grew so bold as to set up its spines in anger when worms were offered to it after it was satiated with eating, and if he put his fingers into the water it would strike at them with great force with its spines.

He tried some other fish in the same jar with it, and such was its audacity that it would attack them even although ten times larger than itself, and would not suffer them to live in the jar. One day a small fish was put into the jar, which it immediately attacked and put to flight, and tore off part of its tail with its teeth, and had it not been removed the stickleback would have soon destroyed it.

The quantity of food required by these animals is so great that they are frequently obliged to emigrate to fresh quarters in search of a more abundant supply, especially when they become numerous.

It has been remarked that vast shoals of the three-spined stickleback visit the river Welland, near Spalding, in Lincolnshire, once every seven or eight years ; and such is their number, that during their progress up the river, they extend nearly entirely across it. It has been supposed that these are the surplus population of the fens which have been last propagated, and which are forced to migrate in quest of food. The farmers use these shoals for manuring the land in the neighbourhood of the river ; and some notion may be had of their vast number, when it is stated that a man employed in catching them has earned four shillings a day for his labour, after disposing of them at a halfpenny a bushel.

Nothing can surpass their energy in removing from one place to another, and hardly any obstacle is sufficient to impede their progress, as they have been known to spring over a space of eighteen inches in perpendicular height above the surface of the water, and in an oblique direction have been known to spring upwards of two feet.

This species spawns in the months of April and June, and they deposit their ova on the aquatic plants. They seldom live longer than three years.

Mr John Ramage of Aberdeen relates the following interest-

ing circumstance:—"When taking a walk in the evening with some of my children, they observed in a small rivulet, south side of king's college, Old Aberdeen, a shoal of sticklebacks in the water, which attracted their attention. I immediately put down my hand and caught one of them, which was skimming near the surface, apparently as active and lively as the others, with this difference only, that it was much distended, and appeared full of roe. One of my children, to whom I had given the stickleback, after keeping it in his hand for a few minutes, told me that its gut was coming out; and upon looking at it, I found about half an inch of a white substance protruding itself. At first I suspected that the child had squeezed it, and that it was part of the roe that appeared; but, upon examining it more minutely, I found the substance to be alive and in motion; and to my astonishment, in the course of half a minute, a leech, fully as large as the stickleback, had disengaged itself, and was crawling about on my hand. The stickleback died almost immediately after giving birth to this strange offspring, and the leech survived it only about twelve hours. Its appearance and motions corresponded in every respect with those of the common leech, except that the colour was entirely white.

"Upon examining the stickleback minutely, it seemed to me that the leech was lodged in the small gut, and most probably had been swallowed by the stickleback for food, when of a small size, and had grown to its present dimensions in the stickleback's belly, after having been swallowed."

On the above curious circumstance, Mr John Stark makes the following observations: "Upon this detail, it may be remarked that the circumstance of a stickleback swallowing a leech is no uncommon one, for young leeches seem to be the favourite food of the three-spined stickleback. My boys had several sticklebacks alive for some months during the last summer; and fed them at first with earth-worms, maggots, and occasionally the small house-fly, which however did not seem to be relished. Afterwards, at my suggestion, young leeches were brought from the ditch in which the sticklebacks were caught, as being more likely with the larvæ of aquatic insects, to form part of their natural supply of food which was submitted to their choice. These were found to be preferred to all other aliment, and for a month at least they had scarcely any other food. The

species of leeches procured were the horse leech, common leech, and the flattened leech. To ascertain what size of leech would be swallowed, a male stickleback, of about an inch and three quarters in length was selected and put in a large tumbler on a mantle-piece, where its mode of attacking and devouring its prey formed a source of amusement to the children for weeks.

"On putting the leeches into the water, the stickleback darted round the tumbler with lively motions till it found a leech detached, and in a proper situation for being seized. When the leech was very small, say about half an inch in length, it was often swallowed at once before it reached the bottom of the vessel, but when a larger one, about an inch, or an inch and a half in length in its expanded state, was put in, and had fastened itself by its mouth to the glass, the efforts of the stickleback to seize and tear it from its hold, were incessant, and never failed to succeed. It darted at the loose extremity, or, when both ends were fastened, at the curve in its middle, seized it in its mouth, rose to near the surface, and after a hearty shake (such as a dog would give a rat) let it drop. The leech, who evidently wished to avoid its enemy upon its release again, attached itself by its mouth to the glass; but again and again the attack was repeated, till the poor leech became exhausted, and ceased to attempt holding itself by its disc. The stickleback then seized it by the head in a proper position for swallowing, and after a few gulps the leech disappeared. The flattened leech (*Hirudo complanata*,) being of an oval form, and having a hard skin, was not attacked, unless when very young, and scarcely two or three lines in length; and leeches of the other species when pretty well grown, or larger than himself when expanded, were killed in the manner above mentioned, but not swallowed.

"In one of his attempts to seize a leech, the stickleback having got it by the tail, the animal curled back and fixed its disc upon his snout. The efforts of the stickleback to rid himself of this encumbrance were amusing. He let go his hold of the leech, which then hung over his mouth, and darting at the bottom and sides of the glass with all his strength, endeavoured to rub off this tantalizing morsel. This lasted for nearly a minute, when at last he got rid of the leech by rubbing his back upon the bottom of the vessel. The leech perfectly aware of the com-

pany he was in, no sooner loosed his hold, than he attempted to wriggle away from his devourer; but before he had reached mid-way up the tumbler, the stickleback had turned and finished the contest by swallowing him up.

“This voracious little fish not only preys upon the young of the leech, but sometimes devours the fry of its own species. In two or three instances, when leeches had not been procured, a young stickleback, about half an inch long, was dropped into the glass, and instantly swallowed. On other occasions, when some of a larger size were put in along with him, he contented himself with killing them. Perhaps the spines of these larger fish, which are erected when in danger, and upon the death of the animal, were too strong for the texture of his throat. In ponds and ditches where sticklebacks occur, the young fry will always be found to seek protection in the shallowest parts of the water from the attacks of their full-grown enemies. One stickleback, at another time, when two minnows, much larger than himself, had been put in to keep him company, attacked them with fury. They fled from his bite in evident dismay; and one of them finding no other means of escape, fairly leaped out of the vessel. Even a female of his own species was no better treated by this ungallant tyrant, who allowed no stranger to enter his domain with impunity.

“The young of the leech being thus, it is conceived, a frequent food of the stickleback, it is not marvellous that such a little devourer should occasionally gorge himself by swallowing a leech of large dimensions for the capacity of the stomach. That this was the case of the stickleback mentioned by Mr Ramage, seems evident from the situation in which it was found near the surface of the water, and the facility with which it was caught.” But to have lived any length of time in the intestines of the stickleback, as Mr Ramage supposes, we conceive to be impossible.

When sticklebacks are put into a tub and kept in a state of captivity for a day or two, they swim about in a shoal apparently exploring their new habitation. Suddenly one will take possession of the tub, or, as it will sometimes happen, the bottom, and will instantly commence an attack upon his companions; and if any of them ventures to oppose his sway, a regular and most furious battle ensues: they swim round and

round each other with the greatest rapidity, biting and endeavouring to pierce each other with their lateral spines, which on these occasions are projected. Battles of this kind have been seen to last for several minutes before either would give way; and, when one does submit, imagination can hardly conceive the vindictive fury of the conqueror, who, in the most persevering and unrelenting way chases his rival from one point of the tub to another, until fairly exhausted by fatigue. From this period an interesting change takes place in the conqueror, who, from being a speckled and greenish-looking fish, assumes the most beautiful colours; the belly and lower jaws becoming a deep crimson, and the back sometimes a cream colour, but generally a fine green, and the whole appearance full of animation and spirit. It has occasionally been observed, that three or four parts of a tub have been taken possession of by as many other little tyrants, who guard their territories with the strictest vigilance, and even the slightest invasion brings on invariably a battle. As may be expected, they usually fight best on their own ground, and the invader is generally repelled; but, when the contrary occurs, the victor adds the defeated party's possession to his own. A strange alteration takes place, almost immediately, in the defeated party; his gallant bearing forsakes him; his gay colours fade away; he becomes again speckled and ugly; and he hides his disgrace among his peaceable companions, who occupy together that part of the tub which their tyrants have not taken possession of; he is, moreover, for some time the constant object of his conqueror's persecution.

These are the habits of the male fish alone: the females are quite pacific; appear fat, as if full of spawn; never assume the brilliant colours of the male, by whom they are never molested. The bite of these little furies is so severe, that when inflicted on the tail, it seldom fails to produce mortification, and consequently death. They also use their lateral spines with such fatal effect, that, incredible as it may appear, they have been seen in a battle absolutely to rip their opponent quite open, so that he sunk to the bottom and died.

There is a curious fact in the history of these little creatures which deserves notice. Previous to death, they reassume all their brilliant colours, which they may have lost from defeat, but they are not so clear and distinct as when in the height of their power.

OF THE MULLET GENUS.

THE fishes of this genus have membranaceous lips, with the lower one carinated inwards. They are destitute of teeth on the jaws, but are provided with them on the palate and tongue. Above the angle of the mouth, it is furnished with a hard callosity. On the gill-membrane there are seven incurvated rays; the gill-covers are smooth and rounded.

THE WHITE MULLET.

This fish is highly esteemed as an article of food; and in August it is considered in the highest condition. A species of cavia is made from the roes of the mullet, which goes by the name of *Botargue*, and is made in the following manner: When the fish is opened, the roes are removed into a dry pickle of salt, in which they are allowed to remain five hours, and are then taken out, pressed between two boards, and the water completely squeezed out; they are then washed in a weak brine afterwards dried in the sun, and are generally fit for use in ten or fifteen days.

White mullets are plentifully diffused over the shores of almost all seas, and pass into rivers at the spawning season, in May, June, and July. They are known to thrive well, even in fresh water lakes with a sandy bottom, where they have no communication with the sea.

White mullets are gregarious, and swim in great shoals, keep-

ing near the surface of the water ; and their presence is known by a peculiar ripple, and a blue appearance, which they give to the water. They are said to be very cunning, and to spring over the net, which is set to take them. One shows the example, and all the rest follow, in the same manner as a flock of sheep will do. This was well known to the ancients, and is thus noticed by Oppian,—

The mullet, when encircling seines enclose,
The fatal threads and treach'rous bosom knows :
Instant he rallies all his vigorous powers,
And faithful aid of every nerve implores :
O'er battlements of cork up-darted flies,
And finds from air th' escape that sea denies.

On the continent, the fishermen have a method of preventing the escape of the mullet by using a double net, so formed, that the second division shall entrap the fugitives.

OF EELS IN GENERAL.

EELS in many respects bear a strong resemblance to serpents, both in habits and external form, having long and slender bodies. They are covered with a smooth and slippery skin, and in general are unprovided with scales; but when they have them, they are set distant from each other. All eels live on animal substances, and are capable of migrating from one stream or lake to another, even over the land.

The fishes of this genus have a small head, and their nostrils are of a tubular shape; the gill-membranes are furnished with twelve rays; the body is of a cylindrical shape, very smooth and slippery; there is no separation between their tail, back, and anal fins, all being united in one continuous fin; the spiracle is always situated either behind the head, or at the back of the pectoral fins.

THE COMMON EEL.

The natural history of the eel is involved in very great obscurity, although, perhaps, few fishes are better known to mankind, as it generally abounds in all fresh waters, and also in the ocean.

Isaac Walton, the father of angling literature, says, "Those that deny them to breed as other fish do, ask, if any man ever saw an eel have a spawn or melt?"

It would appear, that the common eel forms a connecting link

between serpents and fish, possessing not only the shape of the former, but also many of their habits. The eel is frequently known to quit the water, and to wander in the evening or night, over meadows,—some say, in search of snails or other food, but we would rather suppose it to be, either in search of its way to the ocean, or for the purpose of finding more convenient places for breeding. We have frequently known them to inhabit ponds, which had no running water communicating with them, and we are assured by Mr Jesse, that they have been found in ponds in Richmond Park, which had been previously cleaned out and mudded, and into which no water could run, except from the springs which supplied them.

This wandering propensity in the eel has been long known, and has been noticed by the ancient writers, among whom we may mention Oppian, who says,—

“ The wandering eel,
“ Oft to the neighbouring beach will silent steal.”

Mr Jesse says, “ I have been informed, upon the authority of a nobleman well-known for his attachment to field sports, that, if an eel is found on land, its head is invariably turned towards the sea, for which it is always observed to make in the most direct line possible. If this information is correct (and there seems to be no reason to doubt it), it shows that the eel, like the swallow, is possessed of a strong migratory instinct. May we not suppose that the swallow, like the eel, performs its migrations in the same undeviating course ?”

It is mentioned by Mr Arderon in the *Philosophical Transactions*, that as he was inspecting the flood-gates belonging to the Norwich water-works, he observed a great number of eels sliding up them, and also ascending the adjacent parts, to the height of five or six feet above the surface of the water. They got up with the utmost facility, although many of the posts were perfectly smooth, and quite dry. Their heads and half of their bodies were first thrust out of the water, which they pressed against the wood-work for some time ; this, Mr Arderon supposes, was till the viscid substance which is exuded from their bodies became sufficiently thick and adhesible by exposure to the air, to support the weight of their bodies ; they then commence ascending directly upwards, and with as much apparent

ease, as if they had been sliding on level ground. It seems, however, very probable, that they are assisted in their ascent by their small scales, which, like those of serpents, must facilitate their progressive motion.

It is certainly extraordinary the length of time which an eel will exist out of that element in which it spends nearly the whole of its existence. The following remarkable instance is recorded in the *Annals of Sporting*, vol. xii. p. 281. "In a gentleman's warehouse in the Murraygate, Dundee, a porter in pulling out some heads from a mat of Riga flax, discovered in the heart of one of them an animal which he thought was a serpent. It turned out to be an eel, of fifteen or eighteen inches in length. It showed symptoms of life, and on being put into a tub of water, became in a short time as lively, and continued so, as if it had never been out of its natural element. This shows how tenacious of life the eel must be, as the vessel by which the flax came has been a month from Riga, and it is uncertain how long it may have been among the flax before it was shipped. There appears to be no damage or wet in the mat from which it was taken."

The eel is known to be very voracious, and is verified by a circumstance which has been well-authenticated; namely, that as some men were cleaning a pond near Bootle, a large eel was caught, and on opening which, two rats were found in its stomach. When kept in ponds, they have been known to destroy young ducks. Sir John Hawkins had a canal near his house at Twickenham, from whence he missed many of his young ducks, and, on draining, in order to clean it, great numbers of large eels were discovered in the mud. In the stomach of several of them were found undigested heads, and parts of the bodies of the ducklings. In still and deep waters eels grow to an immense size, sometimes to the weight of fifteen or sixteen pounds. One taken near Petersborough, in the year 1667, measured a yard and three quarters in length.

Mr Bingley mentions, that he saw exposed for sale at Retford, Nottinghamshire, a quantity of eels that would have filled a couple of wheelbarrows, the whole of which had been taken out of the body of a dead horse thrown into a ditch in one of the adjacent villages.

Dr Anderson gives the following account in the *Bee* of the

migration of young eels; he says, "Having occasion to be once on a visit at a friend's house, on Dee side, in Aberdeenshire, I often delighted to walk on the banks of the river. I one day observed something like a black string moving along the edge of the river in shoal water. Upon closer inspection, I discovered that this was a shoal of young eels, so closely joined together, as to appear, on a superficial view, one continued body, moving briskly up against the stream. To avoid the retardment they experienced from the force of the current, they kept close along the water's edge the whole of the way, following the windings and sinuosities of the river. While they were embayed and in still water, the shoal dilated in breadth, so as to be sometimes nearly a foot broad; but when they turned a cape, where the current was strong, they were forced to occupy less space, and press close to the shore, struggling very hard till they passed it. This shoal continued to move on night and day, without interruption for several weeks. Their progress might be at the rate of about a mile an hour. It was easy to catch the animals, though they were very active and nimble. They were eels perfectly formed in every respect, but not exceeding two inches in length. I conceive that the shoal did not contain, on an average, less than from twelve to twenty in breadth; so that the number which passed on the whole, during their progress, must have been very great. Whence they came, or whither they went, I know not. The place where I remarked them at was six miles from the sea, and I am told that the same phenomenon takes place every year about the same season."

"Eels migrate from the salt water of different sizes," says Sir Humphrey Davy, "but I believe never when they are a foot long, and the great mass of them are only from two and a half to four inches. They feed, grow, and fatten in fresh water. In small rivers, they are seldom very large; but, in large deep lakes, they become as thick as a man's arm, or even leg; and all those of a considerable size attempt to return to the sea in October or November, probably when they experience the cold of the first autumnal rains. Those that are not of the largest size, pass the winter in the deepest part of the mud of rivers and lakes, and do not seem to eat much, and remain, I believe, almost torpid. Their increase is certainly not known in any given time, but must depend upon the quantity of their food;

but it is probable that they do not become of the largest size from the smallest, in one or even two seasons."

Mr Jesse, in his interesting gleanings, says, "An annual migration of young eels takes place in the river Thames in the month of May, and they have generally made their appearance at Kingston, in their way upwards, about the second week in that month; and accident has so determined it, that, for several years together, it was remarked, that the 10th of May was the day of what the fishermen call eel-fair; but they have been more irregular in their proceedings since the interruption of the lock at Teddington. These young eels are about two inches in length, and they make their approach in one regular and undeviating column of about five inches in breadth, and as thick together as it is possible for them to be. As the procession generally lasts two or three days, and as they appear to move at the rate of nearly two miles and a half an hour, some idea may be formed of their enormous number.

"The line of march is almost universally confined to one bank of the river, and not on both sides at the same time; but, from some instinctive or capricious impulse, they will cross the river and change the side without any apparent reason for doing so. When the column arrives at the entrance of a tributary stream, which empties itself into the river, a certain portion of the column will continue to progress up the tributary stream, and the main phalanx either cross the river to the opposite bank, or will, after a stiff struggle to oppose the force of the tributary branch in its emptying process, cross the mouth of the estuary, and regain its original line of march on the same side of the river. In consequence of the young eels dispersing themselves from time to time, as occasion offers, in the manner above described, the shoal must imperceptibly lessen until the whole have disposed of themselves in different places. I have not yet been able to ascertain at what distance from Kingston the shoal has been seen."

There can be little doubt that the eel is viviparous. In an interesting article in the *New Monthly Magazine* for 1814, this is clearly proved. Mr Chetwynd mentions, that even so late as the month of May, he found live eels in the bodies of large ones; and Mr Taylor says, that he cut open numbers of eels, and found within many of them a small white substance, cu-

riously knotted together, and which, upon close examination, when separated, he found to be young eels capable of moving, and that they were no thicker than a very fine thread: He put them into the water, and they commenced swimming about.

In winter eels retreat deep into the muddy bottoms of ponds and rivers, and have been found in these situations knotted together in large masses.

Respecting the migration of eels, Sir Humphrey Davy says, in his "*Salmonia*,"—"There are two migrations of eels, one *from* and the other *to* the sea; the first in spring and summer, and the second in autumn, or early in winter. The first of very small eels, which are sometimes not more than two and a half inches long; the second of large eels, which sometimes are three or four feet long, and weigh from fifteen to twenty pounds. There is great reason to believe, that all eels found in fresh water are the results of the first migration; they appear in millions in April and May, and sometimes continue to rise as late as July and the beginning of August. I remember this was the case in Ireland in 1823. It had been a cold backward summer, and when I was at Ballyshannon, about the end of July, the mouth of the river, which had been in flood all this month, under the falls, was blackened by millions of little eels, about as long as the finger, which were constantly urging their way up the moist rocks by the side of the fall. Thousands died, but their bodies remaining moist, served as a ladder for others to make their way; and I saw them ascending even perpendicular stones, making their road through wet moss, or adhering to some eels that died in the attempt. Such is the energy of these little animals, that they continue to find their way in immense numbers to Lough Erne. The same thing happened at the fall of the Boun, and Lough Neah is thus peopled with them; even the mighty fall of Schaffhausen does not prevent them from making their way to the lake of Constance, where I have seen many very large eels."

Sir Humphrey Davy continues, "that there are eels in the lake of Neufchatel, which communicates by a stream with the Rhine, but there are none in the Lemane Lake, because the Rhone makes a subterraneous fall below Geneva; and though small eels can pass the moss, or mount the rocks, they cannot penetrate limestone, or move against a rapid descending cur-

rent of water, passing, as it were, through a pipe. Again, no eels mount the Danube from the Black Sea, and there are none found in the great extent of lakes, swamps, and rivers, communicating with the Danube, though some of these lakes and morasses are wonderfully filled with them, and though they are found abundantly in the same countries, in lakes and rivers connected with the ocean and the Mediterranean, yet when brought into confined water in the Danube, they fatten and thrive there. As to the instinct which leads young eels to seek fresh water, it is difficult to reason; probably they prefer warmth, and, swimming at the surface in the early summer, find the lighter water warmer, and likewise containing more insects, and so pursue the courses of the fresh waters, as the waters from the land, at this season, become warmer than those of the sea. Mr Couch says, that the little eels, according to his observations, are produced within reach of the tide, and climb round falls to reach fresh water from the sea. I have sometimes seen them in spring swimming in immense shoals in the Atlantic, in Mount Bay, making their way to the mouths of small brooks or rivers. When the cold water from the autumnal floods begin to swell the rivers, this fish tries to return to the sea; but numbers of smaller ones hide themselves during the winter in the mud, and many of them form, as it were, masses together."

"As very large eels, after having migrated, never return to the river again, they must (for it cannot be supposed that they all die immediately in the sea) remain in salt water; and there is great probability that they are then confounded with the conger, which is found of different colours and sizes, from the smallest to the largest, from a few ounces to one hundred pounds in weight. Both the conger and the common eel have fringes along the air bladder, which are probably the ovaries; and Sir E. Home thinks them hermaphrodite, and that the vessels for the melt and ovæ are close to the kidneys. If viviparous, and the fringes contain the ova, one mother must produce ten thousands, the ova being remarkably small; but it appears more probable that they are oviparous, and that they deposit their ova in parts of the sea near deep basins, which remain warm in winter. From the time (April) that small eels begin to migrate, it is probable that they are generated in winter, and the pregnant eels ought to be looked for in November, December, and Ja-

nuary. I opened one in December, in which the fringes were abundant, but I did not examine them under the microscope or chemically."

Mr Couch, in the Magazine of Natural History, makes the following observations on the propagation of the eel. He says, "I have no doubt that the pearly white substance, which lies along the course of the spine of this fish (the situation of the roe in most fishes), is the roe. Contrary to what is found in most species of fish, this roe contains a large quantity of fine oil, so free from fishy flavour, as to be commonly employed (at least that found in the conger) in crusts and other culinary uses in Cornwall. In the fish, its use seems to be to protect the delicate sexual organs from cold; for these organs are most developed in the coldest season of the year; and the whole constitution of the eel is remarkably susceptible of cold: it feels every change of temperature. The eels which were the subjects of my observations and experiments, were procured from the outer pier at Polperro, in the month of February; and, though the season was so cold that a sheet of ice was left on the beach when the tide receded, they seemed to have lost nothing of their activity. Placing a portion of this roe in the field of a powerful microscope, I found it consisting of globular grains, some far exceeding others in size; from which I conclude, that some are approaching to maturity, and that they are excluded in succession, considerable time elapsing between the expulsion of the first and the last. It is impossible to imagine that these could ever have been hatched within the body, and still less without the circumstance having long since been ascertained. The small size of the external orifice is a farther proof of the same thing. To remove all doubt of this pearly substance being the roe, I burnt a portion of it in the flame of a candle, subjecting it at the same time to the judgment of one well acquainted with the smell of burnt roe of fish, which is sufficiently distinguished from every other smell. The individual was not acquainted with the intention of my inquiry, but the decision that it was the roe of fish was without hesitation. It is probable, that the roe of the eel is rendered prolific previously to its exclusion; for Rondelstein says, that he has seen eels cling together like dew worms; it seems likely, also, that the grains are not deposited or covered, but rather

left to float at random, as is certainly the case with many fishes. It seems difficult, on any other supposition, to account for the young eels coming to life at the distance of two or three leagues from land. Notwithstanding the distance, they soon find their way to the mouths of rivers. Young eels begin to appear in March, the earliest I have noticed being on the third of that month, in 1828; and, in 1830, after minute search, the first I could find was on the 24th. At this season, some are usually found so transparent, that every internal action and organ may be examined. In making observations on eels, I have found much difficulty in keeping the fish in confinement: they made their escape from a vessel where the water was four inches below the brim. One was taken in the street on its way to the stream, others I never recovered; very small ones escaped with no greater difficulty than the larger. In all cases, the escape was at night, I believe, by placing the tail over the edge of the vessel."

The problem of the generation of eels, is one of the most difficult, at the same time, one of the most curious in natural history. This subject occupied the attention of Aristotle, and has since, at different periods, been investigated by naturalists of distinguished talent, and still the question is undecided.

There are several species of eels in Britain; the silver and black eel, of each of which there are two varieties, differing in the size and shape of the head.

It is mentioned by Dr Mitchell, that eels came up to the river Fleet, and even as high as Fleet-market; as also up to Walbrook, as far as the water rises with the tide. He also says, on opening the water-plugs in the streets, that six or eight eels of enormous size and great activity will sometimes come up; and that they get into the small lead pipes which conduct the water from the main pipes to the houses, and have frequently been known to block them up. To prevent a recurrence of this annoyance, a grating is now placed at the entrance of the main pipes to prevent eels from entering them from the reservoir.

THE CONGER EEL.

The chief difference of the conger from the common eel, is in having the lower jaw shorter than the upper; the lateral line is whitish, and with a row of spots; it is also darker in the colour of its body; the edges of the dorsal and anal fins are black: the eyes are also larger in proportion to the size of the head; the irides are of a bright silvery appearance. In its internal conformation, however, there is a manifest difference, in having thirty more vertebræ than the common eel.

It is said, that the conger eel grows to the amazing size of ten feet in length, and from fourteen to sixteen inches in circumference. The conger eel has been known to fight most desperately when taken by fishermen; it has frequently been known to twine itself round their legs, and to inflict severe wounds before it could be subdued. Bingley says, "a conger, six feet in length, was caught in the Wash at Yarmouth, in April 1808; but not until after a severe contest with the man who had seized it. The animal is stated to have risen half erect, and to have actually knocked him down before he could secure it. This conger weighed only about sixty pounds, while some of the larger exceed even a hundred weight."

During winter, the conger conceals itself deep in mud, and continues in that situation as long as the cold weather lasts. This eel is found on many of the British coasts, as well as those of Ireland. They are said to be abundant at Mount's Bay in Cornwall, where they are taken and dried, and upwards of ten tons have been exported from thence in a single season to Spain and Portugal, where they are held in high estimation. The flesh of this eel is white, and reckoned by some persons good eating; but it is certainly too rank and greasy to be relished by a British palate.

Congers are fished for with very strong lines of five hundred feet in length: these are baited with many hooks, and sunk to a depth in the ocean.

In a young state congers are liable to attacks from a number of enemies, particularly from different species of rays, and other fish that swim near the bottom of the ocean, where they usually

resort: the cat fish proves very destructive to them, as they are a favourite food of that voracious fish.

The voracity of the conger is very great. They frequently conceal themselves in mud at the outlet of rivers, and seize all fishes, which are either running up, or going sea-ways. They coil themselves round the larger fishes, in the manner of serpents, and destroy them with their teeth.

THE ELECTRICAL GYMNOTUS.

The head of the gymnotus is provided with lateral operculæ, having two tentacula on the upper lip; and the gill-membrane furnished with five rays; the body is considerably compressed, and a fin extends from about six inches from the head along the whole abdominal region to the point of the tail.

The general appearance of this fish is like that of an eel, and measures from three to four feet in length, and ten or twelve inches in circumference. The head is flat, and the mouth without teeth. This remarkable fish is peculiar to the rocky parts of rivers in South America, and lives at a great distance from the sea. We have the following most interesting and satisfactory account of this fish from the pen of Baron Humboldt, which we shall give at length, as containing a more detailed description of the singular phenomena of electrical fishes than any other with which we are acquainted; he says, "they inhabit the Rio Colorado, the Guarapiche, and several little streams that cross the missions of the Chayma Indians. They abound also in the large rivers of America, the Oroonoko, the Amazon, and the Meta; but the strength of the current, and the depth of the water, prevent their being caught by the Indians. They see the fish less frequently than they feel electrical shocks from them when swimming or bathing in the rivers. In the *Llanos*, particularly in the environs of Calabozo, between the farms of Moriechal, and the missions *de arriba* and *de abaro*, the basins of stagnant water, and the confluents of the Oroonoko, are filled with electrical eels. We at first wished to make our experiments in the house we inhabited at Calabozo; but the dread of the electrical shocks of the gymnoti is so exaggerated

among the vulgar, that during three days we could not obtain one, though they are easily caught, and though we had promised the Indians two piasters for every strong and vigorous fish.

“ Impatient of waiting, and having obtained very uncertain results from an electrical eel that had been brought to us alive, but much enfeebled, we repaired to the Cano de Bera, to make our experiments in the open air, on the borders of the water itself. We set off on the 19th of March for the village of Rastro de Abaxo, thence we were conducted to a stream, which, in the time of drought, forms a basin of muddy water, surrounded by fine trees. To catch the gymnoti with nets is very difficult on account of the extreme agility of the fish, which bury themselves in the mud like serpents. We would not employ the *larbasco*, that is to say, the roots of *Piscidea erithryna* and *Jacquinia armillaris*, which, when thrown into the pool, intoxicate or benumb these animals. These means would have enfeebled the gymnoti; the Indians therefore told us, that they would “fish with horses.” We found it difficult to form an idea of this extraordinary manner of fishing; but we soon saw our guides return from the Savannah, which they had been scouring for wild horses and mules. They brought about thirty with them, which they forced to enter the pool.

“ The extraordinary noise caused by the horses’ hoofs makes the fish issue from the mud, and excites them to combat. These yellowish and livid eels resemble large aquatic serpents, swim on the surface of the water, and crowd under the bellies of the horses and mules. A contest between animals of so different an organization furnishes a very striking spectacle. The Indians, provided with harpoons and long slender reeds, surround the pool closely; and some climb upon the trees, the branches of which extend horizontally over the surface of the water. By their wild cries, and the length of their reeds, they prevent the horses from running away and reaching the bank of the pool. The eels, stunned by the noise, defend themselves by the repeated discharge of their electric batteries. During a long time they seem to prove victorious. Several horses sink beneath the violence of the invisible strokes which they receive from all sides, in organs the most essential to life; and stunned by the force and frequency of the shocks, disappear under the water. Others, panting, with their mane standing erect, and wild looks,

expressing anguish, raise themselves and endeavour to flee from the storms by which they are overtaken. They are driven back by the Indians into the middle of the water; but a small number succeeds in eluding the active vigilance of the fishermen. These regain the shore, stumbling at every step, and stretch themselves on the sand, exhausted with fatigue, and their limbs benumbed by the electric shock of the gymnoti.

“ In less than five minutes two horses were drowned. The eel, being five feet long, and pressing itself against the belly of the horses, makes a discharge along the whole extent of its electric organs. It attacks at once the heart, the intestines, and the *plexus caliacus* of the abdominal nerves. It is natural, that the effect felt by the horses should be more powerful than that produced upon men by the touch of the same fish at any one of his extremities. The horses are probably not killed, but only stunned. They are drowned from the impossibility of rising from amid the prolonged struggle between the other horses and the eels.

“ We had little doubt, that the fishing would terminate by killing successively all the animals engaged; but by degrees the impetuosity of this unequal combat diminished, and the wearied gymnoti dispersed. They require a long rest, and abundant nourishment, to repair what they have lost of galvanic force. The mules and horses appear less frightened; their manes are no longer bristled, and their eyes express less dread. The Indians assured us, that when the horses are made to run two days successively into the same pool, none are killed the second day. The gymnoti approach timidly the edge of the marsh, when they are taken by means of small harpoons fastened to long cords. When the cords are very dry, the Indians feel no shock in raising the fish into the air. In a few minutes we observed five eels, the greater part of which were but slightly wounded. Some were taken by the same means towards the evening.

“ The temperature of the water in which the gymnoti habitually live is about 86 degrees of Fahrenheit. Their electric force, it is said, diminishes in colder waters. The gymnotus is the largest of electrical fishes. I measured some that were from four feet to five feet three inches long; and the Indians assert, that they have seen them still larger. We found that a fish of three feet

ten inches long weighed twelve pounds. The transverse diameter of the body was three inches five lines. The gymnoti of *Cano de Bera* are of a fine olive-green colour. The under part of the head is yellow, mingled with red. Two rows of small yellow spots are placed symmetrically along the back, from the head to the end of the tail. Every spot contains an excretory aperture. In consequence the skin of the animal is constantly covered with a mucous matter, which, as Volta has proved, conducts electricity twenty or thirty times better than pure water. It is somewhat remarkable, that no electrical fish yet discovered in the different parts of the world, is covered with scales.

“It would be rashness to expose ourselves to the first shocks of a very large and strongly irritated gymnotus. If by chance you receive a stroke before the fish is wounded, or wearied by a long pursuit, the pain and numbness are so violent, that it is impossible to describe the nature of the feeling they excite. I do not remember having ever received from the discharge of a large Leyden jar, a more dreadful shock than that which I experienced by imprudently placing both my feet on a gymnotus just taken out of the water. I was affected the rest of the day with a violent pain in the knees, and in almost every joint. To be aware of the difference, which is sufficiently striking, that exists between the sensation produced by the pile of Volta and an electrical fish, the latter should be touched when they are in a state of extreme weakness. The gymnoti and the torpedoes then cause a twitching, which is propagated from the part that rests on the electric organs, as far as the elbow. We seem to feel at every stroke an internal vibration, that lasts two or three seconds, and is followed by a painful numbness.

“Gymnoti are neither charged conductors, nor batteries, nor electromotive apparatuses, the shock of which is received every time they are touched with one hand, or when both hands are applied to form a conducting circle between two heterogeneous poles. The electrification of the fish depends entirely on its will; whether because it does not keep its electric organs always charged, or by the secretion of some fluid, or by any other means alike mysterious to us, it be capable of directing the action of its organs to an external object. We often tried, both insulated and unisolated, to touch the fish, without feeling the least shock. When M. Bonpland held it by the head, or by

the middle of the body, while I held it by the tail, and standing on the moist ground, did not take each other's hand, one of us received shocks which the other did not feel. It depends upon the gymnotus to act towards the point where it finds itself the most strongly irritated. The discharge is then made at one point only, and not at the neighbouring points. If two persons touch the belly of the fish with their fingers, at an inch distance, and press it simultaneously, sometimes one, sometimes the other, will feel the shock. In the same manner, when one insulated person holds the tail, and another pinches the gills, or pectoral fin, it is often the first only by whom the shock is received. It did not appear to us, that these differences could be attributed to the dryness or dampness of our hands, or to their unequal conducting power. The gymnotus seemed to direct its strokes sometimes from the whole surface of its body, sometimes from one point only.

“Nothing proves more strongly the faculty which the gymnotus possesses, of darting and directing its stroke according to its will, than the observations made at Philadelphia, and recently at Stockholm, on gymnoti, rendered extremely tame. When they had been made to fast a long time, they killed from a far distance, small fishes put into a tub. They acted at a distance; that is to say, their electrical stroke passed through a very thick stratum of water. We need not be surprised, that what was observed in Sweden, on a single gymnotus only, we could not see on a great number of individuals in their native country. The electric action of animals being a *vital action*, and subject to their will, it does not depend solely on their state of health and vigour. A gymnotus that has made the voyage from Surinam to Philadelphia and Stockholm, accustoms itself to the imprisonment to which it is reduced; it resumes by degrees the same habits in the tub which it had in the rivers and pools. An electrical eel was brought to me at Calabozo, taken in a net, and consequently having no wound. It ate meat; and terribly frightened the little tortoises and frogs, which, not knowing the danger, placed themselves with confidence on its back. The frogs did not receive the stroke till the moment when they touched the body of the gymnotus. When they recovered they leaped out of the tub; and when replaced near the fish, they were frightened at its sight only. We then observed nothing that

indicated *an action at a distance*; but our gymnotus, recently taken, was not yet sufficiently tamed to attack and devour frogs. On approaching the finger, or metallic points, within the distance of half a line from the electric organs, no shock was felt. Perhaps the animal did not perceive the neighbourhood of this foreign body; or, if it did, we must suppose that the timidity it felt in the commencement of its captivity, prevented it from darting forth its energetic strokes, except when strongly irritated by an immediate contact. The gymnotus being immersed in water, I approached my hand, both armed and unarmed with a metal, within the distance of a few lines from the electric organs; yet the strata of water transmitted no shock, while M. Bonpland irritated the animal strongly by an immediate contact, and received some very violent shocks. If I had plunged the most electroscopes we know, prepared frogs, into contiguous strata of water, they would no doubt have felt contractions at the moment when the gymnotus seemed to direct its stroke elsewhere.

“The electrical organ of the gymnoti acts only under the influence of the brain and the heart. On cutting a very vigorous fish through the middle of the body, the fore part alone gave the shocks. The shocks are equally strong, in whatever part of the body the fish is touched; it is most disposed, however, to dart them forth when the pectoral fin, the electrical organ, the lips, the eyes, or the gills are pinched. Sometimes the animal struggles violently with a person holding it by the tail, without communicating the least shock. Nor did I feel any when I made a slight incision near the pectoral fin of the fish, and *galvanized* the wound by the simple contact of two pieces of zinc and silver. The gymnotus beat itself convulsively, and raised its head out of the water, as if terrified by a sensation altogether new; but I felt no vibration in the hands which held the two metals. The most violent muscular movements are not always accompanied by electric discharges.

“The action of the fish on the organs of the man is transmitted and intercepted by the same bodies that transmit and intercept the electrical current of a conductor charged by a Leyden vial, or Volta’s pile.

“In wounded gymnoti, which give feeble but very equal shocks, these shocks appeared to us constantly stronger, on touching the body of the fish with a hand armed with metal,

than with the naked hand. They are stronger also, when, instead of touching the fish with one hand, naked, or armed with metal, we press it at once with both hands, either naked or armed. These differences I repeat, become sensible only when you have gymnoti enough at your disposal, to be able to choose the weakest; and the extreme equality of the electric discharges admits of distinguishing between the sensations felt alternately by the hand naked or armed with a metal, by one or both hands naked, and by one or both hands armed with metal. It is also in the case only of small shocks, weak and uniform, that the shocks are more sensible on touching the gymnotus with one hand (without forming a chain) with zinc than with copper or iron.

“Resinous substances, glass, very dry wood, horn, and even bones, which are generally believed to be good conductors, prevent the action of the gymnoti from being transmitted to man. I was surprised at not feeling the least shock on pressing wet sticks of sealing-wax against the organs of the fish; while the same animal gave me the most violent strokes, when excited by means of a metallic rod. M. Bonpland received shocks when carrying a gymnotus on two cords of the fibres of the palm-tree, which appeared to us extremely dry. A strong discharge makes its way through very imperfect conductors. Perhaps also the obstacle which the conducting are presents, renders the discharge more painful. I touched the gymnotus with a wet pot of brown clay without effect; yet I received violent shocks when I carried the gymnotus in the same pot, because the contact was greater.

“When two persons insulated or not insulated, hold each other's hands, and one of these persons only touch the fish with the hand, either naked or armed with metal; the shock is most commonly felt by both at once. It happens, however, also, that, in the most painful shocks, the person who comes into immediate contact with the fish alone feels the shock. When the gymnotus is exhausted, or in a very weak state of excitability, and will no longer emit strokes on being irritated with one hand; the shocks are felt, in a very vivid manner, on forming the chain, and employing both hands. Even then, however, the electric shock takes place only at the will of the animal. Two persons, one of whom holds the tail, and the other the head, cannot, by joining

hands and forming a chain, force the *gymnotus* to dart his stroke.

“ In employing very delicate electrometers in a thousand ways, insulating them on a plate of glass, and receiving very strong shocks, which passed through the electrometer, I could never discover any phenomenon of attraction or repulsion. The same observation was made by Mr Fahlberg at Stockholm. This philosopher, however, has seen an electric spark, as Walsh and Ingenhouze had done before him at London, by placing the *gymnotus* in the air, and interrupting the conducting chain by two gold leaves pasted on glass, and a line distant from each other. No person, on the contrary, has ever perceived a spark issue from the body of the fish itself.”

On the 28th August, 1821, a ludicrous, though a painful scene to one of the chief actors, took place at the *Jardin des Plantes*, Paris. A *gymnotus electricus*, or electrical eel, had arrived, alive, and in good health, from Surinam. The *Savans* and naturalists were all in motion, and hastened to the Garden of Plants to see with their own eyes, and touch with their own hands, this living electrical machine. The greater number were satisfied with a single touch and consequent shock ; but one unfortunate doctor, either urged by a greater zeal for science, or governed by a more unsatiable curiosity, resolved to try the utmost extent of the animal's powers, and seized it with both his hands, but had quickly reason to repent his temerity, for he immediately felt a rapidly repeated series of the most violent and successively increasing shocks, which forced him to caper about in the most extraordinary manner, and to utter the most piercing screams, from the agony that he felt. He then fell into convulsions, in consequence of which his muscles became so contracted, or, from some strange property in the fish, it became impossible to detach the animal from his grasp. In this situation he remained a considerable time, and would, in all probability, have expired under the agony of his sensations, if some one of the persons present had not suggested the plunging of his hands in water, when the *gymnotus* immediately dropped off. The doctor took dangerously ill, and continued so for a considerable length of time, but it was long before he finally recovered from the effects his health had sustained by this adventure.

OF THE COD TRIBE.

THIS tribe is very numerous, and inhabit the depths of the ocean only. They associate in vast shoals, and feed on the smaller fishes, worms, and shell-fish, &c. The flesh of nearly the whole congenerous species is white, firm, and very palatable eating. Contrary to what the vulgar imagine, as food they are very nutritious.

THE COD-FISH.

This species repairs to the polar seas to spawn. It is by no means a widely diffused fish, being seldom taken north of Iceland, nor farther south than the sand banks off the Straits of Gibraltar. The former place was the chief fishery for cod, till after the discovery of Newfoundland. In the reign of James the First of England, at least one hundred and fifty English vessels were employed in the Iceland fishery; and it is not less than four hundred years since that country was first visited as a fishing station, which is now entirely forsaken, as Newfoundland is considered so much preferable;—this vast bank extends five hundred miles in length, and nearly three hundred in breadth, covered by water averaging from fifteen to sixty fathoms. The vessels employed in this fishery are from one hundred to two hundred tons burthen, and take in a season about thirty or forty thousand cod each, and give employment to nearly fifteen thousand men.

On the British coasts cod are taken by means of nets, and also by lines. The cod spawns in January, and is astonishingly prolific, for Leeuwenhoek counted nine millions of eggs in the roe of a moderate-sized fish. So prolific are they, that they seem to increase, notwithstanding the immense numbers that

are eaten by mankind, and the multitudes of them destroyed by fishes of prey.

The cod frequently grows to a large size; one taken off Scarborough in 1775 weighed seventy-eight pounds, and measured five feet eight inches in length, and five feet in girth.

The cod feeds principally on the smaller species of fishes, sand worms, and shell fish, both testaceous and crustaceous. We once killed one, which we discovered in a large pool left by the tide, at Killough, County of Down, Ireland, in the stomach of which we found upwards of fifty small crabs, and other testaceous and crustaceous animals. The stomach was crammed to its utmost extent, which probably rendered the fish unfit for active motion.

THE HADDOCK.

This fish is migratory, and arrives in our seas about the middle of winter. An immense shoal of these has been known to reach from Flamborough Head to Tynemouth, an extent of nearly fifty miles. Upon this occasion three boatmen, frequently, in the course of a day, took two boat-loads, or about two tons a day, without the trouble of going more than a mile from the harbour of Scarborough. A curious instance of the disappearance of haddocks from the coast of Northumberland, Durham, and Yorkshire, in the years 1790, 1791, and 1792, is mentioned in a letter to the secretary of the royal society.

From time immemorial prodigious quantities of haddocks were caught in the above mentioned coasts, during three months of every year. But in these three years very few haddocks were to be met with, and those of a remarkably large size. Various speculations were afloat at the time to account for this unusual occurrence; one of which was, that the shoal of haddocks had met with beds of copperas at the bottom of the sea, and another, that the usual gales of wind had not taken place, which were necessary to drive the fish off the Dogger-bank.

It was affirmed by several masters of vessels belonging to North Shields and Sunderland, that after doubling the North Cape, and near Fisher's island, they fell in with immense quantities of haddocks lying on the surface of the ocean. Most

of these fish were dead, and some in a weak and feeble state, and unable to sink in the water. They found them for a space of between twenty and thirty leagues in length, and from three to five leagues in breadth. Some of these fish were eaten without any person receiving the least injury from them. They were stated to be lying so thick together, that, within the compass of twelve or fifteen yards, a boat load of from three to five tons might have been taken up. On opening some of them the sound was found to be much inflated, to which cause the great mortality amongst those fish was ascribed, but what occasioned this inflation is not known.

Otho Fabricius says, that in Greenland haddocks remain near the bottom of the water during the day, but approach the surface in the evening. The female spawns in February, at which time they approach the shore in shoals, and deposit their eggs upon sea weeds. The spot is afterwards visited by the males, in order to render the spawn productive.

THE WHITING.

The flesh of the whiting is considered very delicate eating, and of easy digestion, from which circumstance has arisen an adage, that "the whiting is never heavier in the stomach, than it is when suspended to the waist."

Shoals of whittings sometimes approach the coasts of Britain of such extent, that they have been known to reach from three to four miles in length, and one mile in breadth.

The whiting resides near the bottom of the ocean, feeding on young fish, crabs, lobsters, molluscæ, and worms. They are said to pursue the shoals of herrings with great eagerness, and are occasionally taken in great numbers in the herring nets.

THE LING.

The ling measures from three to four feet; the body is slender, olive green above and white in the lower parts. The head

is furnished with a single cirrus or beard ; and the lower jaw is somewhat shorter than the upper one. It has two dorsal fins, the lower one extending nearly to the tail ; these are edged with white, and the ventral fins are all white ; the tail fin has a marginal fillet of white, and a transverse bar of black near its end.

This is esteemed an excellent fish for the table, and considerably finer in flavour than cod. The tongue is thought a delicacy, and is eaten both salted and fresh. They are in season from February until about the end of May.

In a salted state the ling forms an important article of commerce. From the coasts of Norway there are exported about a million pounds weight annually.

THE HAKE.

The hake is from two to three feet in length ; the back is ash coloured, and the belly of a dingy white ; the mouth is very wide, provided with long and sharp teeth, and is destitute of any cirri, with the lower jaw projecting beyond the upper one ; it has two dorsal fins, the second extending nearly to the tail.

This fish is so far inferior to most others, that it is but rarely eaten in Britain ; but on various parts of the continent it is much esteemed. In most of the British and Irish coasts the hake is very abundant, especially in the channel, in vast shoals reaching nearly in a continuous line, from the west coast of Devonshire to Penzance in Cornwall. They are taken and dried in the same manner as cod, and also pickled, for the purpose of being exported to Spain, Portugal, and the Italian States.

The hake is a very voracious fish, and keenly follows shoals of herrings and mackerel, and is said even to devour its own species.

The different species of sea-fish have been successfully kept in ponds, which have a communication with the sea. The following notices regarding the habits of fishes so kept, are by that excellent naturalist, Patrick Neill, Esq. of Canon Mills :—

“ 1. Cod.—They were lively, and caught greedily at shell-fish which were thrown into the pond. They kept chiefly, however, in the deep water, and, after approaching with a circu-

lar sweep, and making a snatch at the prey, descended out of sight to devour it.

"2. Haddock.—These, contrary to expectations, were found to be the tamest fishes in the pond. At ebb tide they came to the inner margin, and ate limpets from the hand of a little boy, the son of a keeper. They appeared white and rather sickly.

"3. Coalfish.—Some of these were of a large size, exceeding in dimensions the largest cod in the pond. They were bold and familiar, floating about slowly and majestically, till some food was thrown to them; this they seized voraciously, whether it consisted of sell-fish or ship biscuit. They also would occasionally approach the margin, and take their food from the keeper's hand.

"4. Whiting.—These were scarce in the pond, and rather shy.

"5. Pollack.—This was pretty common and has been found to answer well as a pond fish.

"6. Salmon.—This was the wildest and quickest in its motions of all the inhabitants. When a muscle or limpet freed from the shell, was thrown on the surface of the water, the salmon very often darted forward and took the prey from all competitors, disappearing with a sudden jerk and turn of the body.

"7. Flat fish or Flounders of two sorts were also in the pond, but they naturally kept at the bottom, and were not seen.

"The food given to the fishes consisted chiefly of sand-eels and of shell-fish, particularly limpets and muscles. In the herring fishing season, herrings were cut in pieces for the purpose.

"It is remarkable that all kinds of sea-fish above enumerated seemed to agree very well together. No fighting had ever been observed by the keeper, and seldom any chasing of one species by another. None of the fish ever bred."

Dr Fleming states, that when a salt-water fish is put into fresh water, its motions speedily become irregular, its respiration appears to be affected, and unless released it soon dies, and that the same consequence will follow when a fresh-water fish is suddenly immersed in salt-water.

But this is well known not to be the case with all fish. A cod has been known, not only to live, but to thrive well in fresh water, if properly fed.

OF FLAT FISH IN GENERAL.

IN this genus are comprehended the turbot, plaice, fluke, flounder, holibut, sole, &c. These species are usually confined to the muddy or sandy banks of the sea, and lie concealed, all but the head under the surface, by which they elude their enemies, and are enabled to dart upon their prey, by whom they are unseen. The fishes of this genus are destitute of an air bladder, and consequently are unable to rise high in the water. When they do ascend, they use their pectoral fins, in the same manner as birds do in passing through the air.

Some of this tribe grow to a very large size, such as the holibut and turbot. Differently from most other fishes, they all have the eyes situated on one side of the head; and in some species the head is sinistral, while it is dextral in others. The backs of all the species are of a dark ash-colour, or drab, speckled and clouded, in various manners, and their under side of a pure pearly white. They appear to be aware of the fitness of the colour of their backs for concealment, and when in apprehension of danger, they lie flat and motionless on the surface, and generally elude their pursuers.

The Greenlanders make use of the membrane of the stomach of the holibut as a substitute for glass to their windows.

OF THE SUCKING-FISH TRIBE.

THE head of the fishes of this tribe is naked, flat, and oily, surrounded by a narrow margin, and having several grooves on its upper surface. The gill-membrane is furnished with ten rays; and the body is destitute of scales. There are but three species of this genus, and these inhabit the Pacific ocean, and Mediterranean.

THE REMORA.

From the earliest times, wonderful and fabulous powers have been attributed to this fish, and has afforded ample scope for the fancies of the poet in all ages, and also the narrative of the credulous traveller.

The remora inhabits almost all seas, and is frequently found firmly adhering to the sides of fishes of the larger kinds, with such pertinacity, that it is hardly possible to remove it. They are great enemies to sharks, and five or six remoras have been found attached to the body of a single shark. Such is their adhesive power, St Pierre informs us, that they will adhere so strongly even to glass, that it is hardly possible to remove them.

It is said, that in former times the natives of the islands of Cuba and Jamaica, used to employ this species in catching other fish. They were tamed and kept for the purpose. They took them out to sea, secured by a long and slender line of considerable length to their canoes, and as soon as the remora saw a fish pass, or even at a distance, it darted off with the utmost

velocity, and soon came up with and fastened on it. The fish although fixed on by the remora, pursued their course until overcome by exhaustion. The course of the fish was marked by a buoy, which the fisher drew to the shore, the remora all the while firmly adhering, and was then removed with considerable difficulty.

We are informed by Oviedo, that the remora has been known to take a large turtle in this way. The flesh of the remora is said to taste like fried artichokes, and to be rather palatable than otherwise.

THE SALMON AND ITS CONGENERS.

THE members of this tribe are found to frequent the purer rivers of the northern seas, where there is little or no mud, and where they are rather rapid in their course than otherwise, and of a gravelly or stony bottom. Salmon and some others spend half their existence in the sea, resorting to rivers during the spawning season, which they deposit in beds of gravel. After this process is over they return to the sea. The whole tribe form luxuriant and nutritious food.

THE SALMON.

The natural history of this well-known fish is still involved in much obscurity. It is now pretty well ascertained that the salmon grows with much more rapidity than was before believed, and that the grilse, or young salmon, of from two and a half to three pounds weight have been sent to the London markets in the month of May, the spawn from which they come having only been deposited in the preceding October or November, and the ova taking three months of the time to quicken. It has also been ascertained, by experiment, that a grilse which weighed six pounds in February, after spawning, has, on its return from the sea in September, weighed thirteen pounds; and a salmon-fry of April, will in June weigh four pounds, and in August six.

Fish, more especially salmon, are much attached to particular localities. A gentleman, who has been long accustomed to angle on the Thames, has been in the habit of marking different

fish caught in particular spots, and has carried them up for several miles in the well of his boat, and thrown them into the water; and he has taken them a second and even a third time in the places where he originally caught them.

Mr Alexander Fraser, who has written on the Natural History of the salmon, says, that little reliance can be placed on the alleged variety of appearance in salmon found in different rivers. The best authority, he conceives, is some mark actually made on the body of the fish, which proves also its extraordinary rapidity of growth. In February 1829, he marked several grilse of five and six pounds weight after spawning, by cutting off the fin immediately above the tail. On the first of September following, he caught one of them, which then weighed thirteen pounds. On the 10th of the same month, he caught another of thirteen pounds weight; both were in fine condition, and charged with spawn. These had returned near to the spot where he had marked them. He mentions an instance in which Mr Mackenzie of Ardross, tied wire round the tails of some breeders, which were returning to the sea in March, 1824, and in March, 1825, he caught one of the fish thus marked, doubled in size, and the wire nearly out of sight.

Mr Mackenzie, tacksman of the river Ewe, in Ross-shire, some years ago marked a number of grilises, by cutting off a small portion of the tail, or of the fin above it. Near the end of the same fishing season some of these fish returned to the river, and were caught, being then large salmon, double the size and weight than when marked about three months before.

Mr Alexander Morrison, in May, 1794, caught five smelts, or salmon fry, in the river Berridale, in Caithness. In about six or seven weeks thereafter, he caught two of these, which had become grilises, weighing about three pounds and a half each. In April following he took another of these, and it had become a salmon of between seven and eight pounds weight.

Salmon fry have been caught in the rivers Eden and Spey, marked by boring holes in their tails, these have descended to the sea, and returning three months afterwards weighed three pounds each. These facts not only prove the rapid growth of the salmon, but also that they invariably return to their native rivers from the sea.

Mr Schonberg made some curious experiments on the spawn

or eggs of salmon. Pulsation was visible the day after they were brought from the river. The animal moved itself now and then with alternate contraction and dilatation. The spawn kept generally a fixed point of gravity, viz. with the eyes sideways. On the fifth day the head was protruded through the shell of the egg. In ten days the length of one was eleven lines from the head to the tail.

An experiment made by Mr Nicholas Mills, mentioned in Brewster's Journal, proves that salmon will not grow to any great size if kept in a fish pond. He caught some salmon fry while retreating to the sea, and put them in a small pond, which was supplied by a running stream. They measured four inches from the snout to the point of the tail. About twelve months afterwards the pond was overflowed, when some of these were left dry on its margin, and only measured eight inches in length, and having the shape and appearance of a lean salmon. He most erroneously concludes, that in ponds they might attain their full size; but from the little progress they had made in their growth, we think a conclusive argument against his opinion being well founded, and we are borne out in this from what we have above stated respecting the rapidity with which that fish grows.

THE SMELT.

This is an elegant little fish, and not unfrequent in the Scottish rivers. It is plentiful in the river Forth, where it is taken by means of poke nets. The smell of this species is very peculiar, being not unlike that of newly cut cucumbers.

Smelts are in perfection in the months of December and May. They live principally in the sea, and only ascend rivers for the purpose of spawning. Half a pound is the largest size that this fish has been known to grow to, and its length never exceeds thirteen inches. The roe of a smelt was counted by Mr Clark, and was found to contain 38,278 eggs.

OF THE PIKE AND ITS CONGENERS.

THIS genus consists of numerous species, four of which inhabit our seas and rivers. Their heads are all flattened, the under jaw projecting considerably beyond the upper one. The body is long, slender, and compressed at the sides, and protected by hard scales. The dorsal fin is situated low in the back, near the tail, and usually opposite the anal fin. They are all most voracious and predatory animals, but, in this respect the common pike exceeds all the others. They are strong fishes, and swim with great rapidity; and from their power they seldom fall a prey to other fish; and increase quickly to a great size.

THE COMMON PIKE.

The rapacity of this fish is notorious. Jesse says, "out of eight hundred gudgeons, which were brought to me by a Thames fisherman, and which I saw counted into the reservoir, some few of which, however died, there were scarcely any to be seen at the end of three weeks, though I should mention that three large barbel, and six good sized perch probably partook of them. Indeed, the appetite of one of my pike was almost insatiable. One morning I threw to him one after the other, five roach, each about four inches in length. He swallowed four of them, and kept the fifth in his mouth for about a quarter of an hour, when it also disappeared."

The pike is an animal of extraordinary boldness. A few years ago, the head keeper of Richmond park was washing his hands at the side of a boat, in the great pond of that park, when a

pike made a dart at one of his hands, which he suddenly withdrew, otherwise he would have received a severe snap.

Pike-fishing forms an amusing sport, for if a large one is hooked he will run about in excellent style. They will take almost any kind of bait; we have found an imitation of a bird made of red and yellow broad cloth, eagerly dashed at by pikes. The tackle requires to be of great strength, otherwise it will soon be bitten through by the numerous strong and sharp teeth of the animal. Indeed, small wire is generally used attached to the hooks, extending about a foot beyond it, to prevent the pike from cutting it. Tackle have been carried away by a pike, and in a few minutes afterwards have struck at and been caught by another line, with part of the tackle hanging out of their mouth. An instance is mentioned of one being taken with a strong piece of twisted wire projecting from its side, and yet in excellent condition, and on opening the fish, a double eel hook was found attached to the wire and much corroded. In Salmonia, we are informed that a pike took a bait with a set of hooks in his mouth, which he had just before broken from a line. This great tenacity of life may account for the circumstance of few pike being found dead after they have broken away with the gorge-hook in them.

We are informed by Baulkar, that his father caught a pike, an ell long, and which weighed thirty-five pounds. It was sent alive to Lord Cholmondeley, who directed that it might be put into a canal in his garden, which contained a great quantity of fish. Twelve months afterwards the water was drawn off, and it was discovered that the pike had eaten all the fish but a single carp, that weighed between nine and ten pounds, and even this had been bitten in several places. The canal was filled with water, and well stocked with fish of different kinds, and the pike again put in, all of which he despatched in less than a year. He was noticed frequently to draw ducks under the water. Crows were shot and thrown in, which he would take in presence of those standing by the banks of the canal. After this he was ordered to be fed on garbage from the slaughter-house, but he died from the want of food, the keeper having neglected to feed him.

The digestion of the pike is so rapid, that in a few hours, not a single bone of a roach which has been swallowed can be discovered. This fact may account for the practice which has been

noticed of the pike holding a small fish in his mouth until digestion has somewhat diminished the contents of his already gorged stomach.

Where food is abundant pike grow with considerable rapidity. Three were taken out of the pond of Sir J. Clark Jervoise, two of which weighed thirty-six pounds each, and the other thirty-five pounds. The pond was fished every year, and allowing that store pike of six or seven pounds weight were left in it, the growth of the above pikes must have been at the rate of at least four pounds a year.

Mr Jesse says, "fish appear also to be capable of entertaining affection for each other. I once caught a female pike during the spawning season, and nothing could drive the male away from the spot at which the female disappeared, whom he had followed to the very edge of the water. A person who had kept two small fish together in a glass, gave one of them away; the other refused to eat, and showed evident symptoms of unhappiness till his companion was restored to him."

The pike is well known to be a long-lived animal, and Gesner goes so far as to mention an instance of one whose age was ascertained to be *two hundred and sixty-seven years*.

The common pike inhabits most lakes and rivers in Europe, also the northern parts of Persia, extending its range as far as Lapland. In Persia, it is said, they have been found nearly eight feet in length, but we should think this rather a stretch of imagination.

The pike spawns in March or April. When in high season, the colours of the fish are very vivid; being of a fine green, spotted with yellow, and the gills of a lively red. When out of season, it becomes of a greyish colour, and the yellow spots very pale. The pike is esteemed good eating.

In the year 1497, a pike was caught in standing water, at Heilbronn on the Neckar, which had a copper ring round its head; the ring bore the following inscription in Greek:—"I am the first fish that was launched into this pond, and was thrown in by Frederick the Second, emperor of the Romans, on the fifth of October, 1230." It appeared, therefore, that the pike was two hundred and fifty-seven years old when thus caught; it weighed three hundred and fifty pounds; and an

exact representation of it exists to this day upon one of the gates of Heilbronn.

In 1826, there was in a pond belonging to a gentleman at Ely, Cambridgeshire, a large pike, weighing 7 or 8 pounds, perfectly tame and quite blind, in which state it had been 7 or 8 years. He had become quite familiar with his owner, who frequently indulged him with a meal on the smaller fry:—A fish was put on a string, fastened to a pole, and after a stamp on the brink of the water, Jack regularly made his appearance on the surface, received his dole, and disappeared. He was in general healthy, but in the spring of the year his body was rather annoyed by animalculæ, with which the water was infested.

A gentleman now residing at Weybridge, in Surrey, was one day walking by the side of the river Wey, near that town, he saw a large pike in a shallow creek. He immediately pulled off his coat, tucked up his sleeves, and went into the water, to intercept its return to the river, and to try to get his hands under it, and throw it on the bank. The pike finding himself thus hemmed in, seized one of the arms of the gentleman, and lacerated it so much that the mark is still quite visible.

In Lord Gower's canal at Trentham, a pike seized the head of a swan as he was feeding under water, and gorged so much of it that both died.

Walton tells us, "I have been assured by my friend Mr Seagrove, who keeps tame otters, that he has known a pike in extreme hunger, fight with one of his otters for a carp that the otter had caught, and was then bringing out of the water."

In December, 1765, a pike of twenty-eight pounds weight was caught in the river Ouse, in the stomach of which a watch with a black ribbon and seals were found. It was afterwards discovered that these were the property of a gentleman's servant who had been drowned in the river about a month before.

Gesner mentions, that a mule while drinking in the Rhone, was seized by the lips by a pike, who dragged the voracious animal out of the water. He mentions that many instances have occurred of their biting the legs of persons while washing in that river.

OF

THE HERRING AND ITS CONGENERS.

ALL these fish inhabit the depths of the ocean, feeding on various kinds of molluscous animals. Almost all the species are gregarious and migratory; and all are esteemed excellent food. The herring, shad, and anchovy were well known to the ancients, and in great repute among them.

Their general characters are, having compressed bodies, and covered with slightly attached scales; their bellies extremely sharp, sometimes forming a serrated ridge; the gill-membrane having eight rays; the jaws unequal, the upper one being provided with serrated mystaces, or connecting bones, and the tail forked.

THE HERRING.

“The migrant herring steers her myriad bands
From seas of ice to visit warmer strands;
Unfathomed depths and climes unknown explores,
And covers with her spawn unmeasured shores.
—All these, increasing by successive birth
Would each o’erpeople ocean, air, and earth.”—DARWIN.

It has long been a prevailing opinion that herrings principally inhabit the Polar seas, but this is now considered by some distinguished naturalists to be an erroneous opinion.

The young herrings do not follow the old ones in their first migrations, as they are to be found in all the American bays till the autumn, when they disappear.

Such is the fecundity of the herring, that it has been calculated the offspring of a single one, if unmolested and undiminished

by other fishes, for the space of twenty years, would exhibit a bulk of ten times the size of the earth. But creative wisdom has ordained, that these prolific animals should have a multitude of enemies to keep their increase in check, and maintain a balance of nature.

About fifty years ago, the shoals of herrings came into Loch Urn in such amazing quantities, that from the narrows to the head, about two miles, it was quite full. So many of them were forced ashore by the pressure, that the beach for four miles round the head was covered with them, from six to eighteen inches deep; and the ground under water, as far as could be seen, when the tide was out too, equally so. Indeed, so dense and forcible was the shoal, as to carry before it every other kind of fish; even ground-fish, skate, flounders, and plaice, were driven on shore with the force of the herrings, and perished there.

It is a curious fact, that herrings die the moment they are taken out of the water; whence originated the adage, which is much used, *as dead as a herring*. They cannot be too soon used after they are out of the water, when taken in the summer season.



THE PILCHARD.

The body of this fish is more round and thick than that of the herring; the snout is somewhat cocked up, and shorter in proportion than that of the herring; and the under jaw is also shorter; the back is more elevated, and the belly not so acute; the scales adhere more closely than the herring, and are considerably smaller; the dorsal fin of the pilchard is placed considerably farther back than that of the herring.

Pilchards appear in vast shoals about the middle of July off the Cornwall coasts, where they continue till the latter end of October, and retire to some undisturbed deep to pass the winter. It is a singular fact, that about fifty years ago, the time that these fish migrated from our coasts was about Christmas; and how this should be, is not easily accounted for.

THE SPRAT.

These fish inhabit the Mediterranean, the North Sea, and the Baltic, and are taken in immense numbers. They enter the Thames about the beginning of November, and leave it early in March. At Gravesend and Yarmouth they are cured in the same manner as red herrings. They are sometimes pickled, and are considered little inferior in flavour to anchovies; but the bones do not dissolve like those of that fish.

THE SHAD.

The shad frequents the Rhine in March, and the Thames in April, May, and June, and the Nile in December and January. After they have been for sometime in fresh water they fatten, and improve wonderfully in their flavour, although at best they are but an indifferent fish.

THE ANCHOVY.

These fishes enter most of the European rivers betwixt the months of December and March; and the British coasts in June and July.

Anchovies are fished for at night; the fishermen light up a fire on the shore, the glare of which attracts the fish.

The ancient Greeks and Romans prepared from anchovies, a liquid, which they called *garum*; and this was highly esteemed by the epicures of the times. At the present time they are pickled, and in much use as a fish sauce.

OF FLYING-FISH IN GENERAL.

ONLY three species of flying-fish are known; these chiefly inhabit the tropical seas, although occasionally found in temperate regions. About twenty years ago, one of the common species was caught on the Welsh coast.

The head is covered with scales, and the mouth unprovided with teeth; the belly is angular, and the pectoral fins are nearly as long as the body; and are used as a substitute for wings.

THE COMMON FLYING-FISH.

This species has a considerable resemblance to the herring, only that the back is flat, whereas in the herring it is considerably arched; it is covered with large silvery scales; the pectoral fins are long, which are used as wings, the dorsal fin is small and situated near the tail, which is forked; the eyes are so large and prominent, that they can see behind them as well as before. They are natives of the European and American seas.

THE CARP AND ITS CONGENERS.

ALMOST all this tribe inhabit fresh waters, feeding on worms, insects, small fish, and aquatic plants. The species are very numerous, and are found only in the northern European countries, and consequently were unknown to the ancient Greeks and Romans. They all thrive well in artificial canals or fish ponds.

THE COMMON CARP.

Carp will breed freely in some ponds, and not in others; those of Busby Park have a sandy bottom, with a fine stream of water running through them, and yet carp do not produce plentifully in them. They succeed better in some stagnant ponds of Sussex where the bottoms are muddy, and in some of these breed in great quantities.

This fish is considered one of the best for stocking ponds on account of its rapid growth and vast increase. Mr Clark found a roe of a carp to contain 203,109 eggs. It is only surprising how little attention is paid to the propagation of this excellent and prolific fish. A good sized pond stocked with these would prove as profitable to its owner as a garden. Jovius mentions some which were caught in the Lago di Coma, that weighed *two hundred* pounds each. They have been caught in the Dneister five feet in length.

Carp become very tame, will approach the banks of a pond to be fed, and will even take food from the hand. Smith, in describing the seat of the Prince of Conde at Chantilly, says, "The most pleasing things about it were the immense shoals of large carp, silvered over with age, like silver fish, perfectly tame;

so that when any passengers approached their watery habitation, they used to come to the shore in such numbers as to heave each other out of the water, begging for bread, of which a quantity was always kept at hand in purpose to feed them. They would even allow themselves to be handled."

The carp is very tenacious of life, and will live a long time out of the water. An experiment has been made by placing a carp in a net, well wrapped up in wet moss, (the mouth only remaining out,) and then hanging it up in a cellar, or some cool place. The fish was frequently fed with bread and milk, and often plunged into the water. With this treatment they have been known to live a fortnight, and even to become fat, and to have been of finer flavour than one fresh caught from a pond. Carp are said to live a great age; Gesner mentions one which was known to be one hundred years old; and in the pond of the garden of Emanuel college, Cambridge, there was an instance of one attaining more than seventy years. This fish was introduced into Britain upwards of three hundred years ago; they are natives of the slow rivers and stagnant waters of southern Europe and Persia.

THE DACE.

Angling for dace is a source of considerable amusement. The season in which this fish takes best is in winter, but from February to April is the fittest time. They are gregarious, and in warm weather may be seen playing near the surface of the water. Their chief retreats are under shaded banks, or aquatic plants. They are taken by baits of worms, maggots, and flesh-flies.

The dace never grows to a large size, seldom exceeding a pound weight, or a pound and a half at most. They spawn in March, and are very prolific. The flesh of the dace is not considered very good, being bony and insipid in taste.

THE ROACH.

The roach is a beautiful fish in the water, or when immediately taken out of it, but the flesh is not esteemed good eating, the bones being large. It is in season from Michaelmas to March. When kept in ponds the flesh of this fish is never good, and it appears to require free scope in a river to give it flavour.

This is considered a very silly fish, from which it has acquired the name of *river sheep* in England. The roach frequents deep, still rivers, where they may be seen in large shoals, as they are gregarious. In warm summer weather they are found lying at the bottom of streams, or under the banks among weeds, particularly such as are shaded by trees or shrubs. They leave these situations on the approach of winter, and resort to deep and still pools.

THE GOLD FISH.

This beautiful fish was first introduced into England about the year 1691. It is a native of China, where they are very common in ponds. They are, however, very delicate; and unable to stand the powerful rays of the sun; on which account, in each of the ponds where they are kept, earthenware basins, with holes in them, are placed upside down, so that the fishes may retire under them for shade. In China these fish are taught to rise to the surface of the water to be fed, at the sound of a bell. In very cold weather they are frequently taken into the house to prevent them from being frozen up.

The gold fish is very prolific, and when their fry is first produced is perfectly black, but they afterwards change to white, and to gold colour.

There are several varieties of this beautiful fish, some of them appearing all speckled over with golden dust, others are pure silvery white, some are spotted with red and white; and a fourth variety is black and white spotted.

We have seen immense numbers of all these varieties, and many of them of a large size in the ponds at the Royal gardens

of the Thuilleries at Paris.—They are perfectly tame, and follow individuals round the ponds in hopes of being fed.

“ In China, gold fish are fed with balls of paste, and the yolks of eggs boiled very hard. In England, many persons are of opinion that they need no aliment. It is true that they will subsist for a long time without any other food than what they can collect from water frequently changed; yet they must draw some support from animalcules and other nourishment supplied by the water.” They however thrive best with proper feeding, such as small aquatic insects, worms, &c.

Gold fish do not breed in close confinement, and do best in a pond where a stream of water passes through it, and where some places are very deep, with proper shelter for retiring to during the noonday sun.

OF

CRUSTACEOUS ANIMALS IN GENERAL.

CRUSTACEOUS animals possess the two following characters peculiar to themselves. They respire by means of branchiæ, or by branchial laminæ, generally annexed to their feet, or to their jaws. They have a distinct heart, which is furnished with circulating vessels; they have from five to seven pairs of feet; in many instances the head is not distinct from the trunk, and provided with two or four antennæ; and two moveable compound eyes frequently placed on a peduncle, which are moveable in any direction, and consist of a multitude of lenses like the eyes of insects.

The crustacea are for the most part predatory animals, subsisting on dead or decomposed animal matter; they have extremely voracious appetites. The greater number of them inhabit the sea, living in deep water, and in situations suited to their particular habits; others are found in fresh waters; while a third kind inhabit the land. Some of them have fin-like feet, and swim on their side or back, and the greater part of the others walk sideways or backwards. Some of them run with considerable rapidity; and some climb trees. Most of them form excellent food, and are eagerly sought after for this purpose. They have all of them a remarkable physiological quality, that of being able to reproduce a lost limb, and they change their shell or covering annually.

The females carry the ova under their tails, which, for that purpose, in many of the species, is much broader than that of the males.

THE LOBSTER.

“ In shelly armour wrapt, the lobsters seek
 Safe shelter in some bay, or winding creek ;
 To rocky chasms the dusky natives cleave,
 Tenacious hold, nor will the dwelling leave.
 Nought like their home the constant lobsters prize,
 And foreign shores and seas unknown despise.
 Though cruel hand the banish'd wretch expel,
 And force the captive from his native cell,
 He will, if freed, return with anxious care,
 Find the known rock, and to his home repair ;
 No novel customs learns in different seas,
 But wonted food and home-taught manners please.”

In the lobster is a very large membrane, which is a powerful assistant both in swimming and leaping. It consists of six convex segments, placed over each other like the tiles of a house, and terminated by five laminæ or thin plates. The segments are united by loose membranes, which admit of considerable motion ; at the angle of these segments, there are hard fine-like processes, bordered with a fine hairy fringe. These fins are moved backward and forward, and a little outward and inward, by means of small muscles, continued within each articulation. By means of these the animals have their progressive motion at different depths in the water.

For the most part crabs are provided with eight legs, a few, however, have six or ten ; besides these they have two large claws which serve the purpose of hands.

It is well known that when a crab or lobster is boiled, its shell assumes a fine red colour, the nature and cause of which have hitherto been unknown. At the desire of M. Latreille, a series of experiments upon it was undertaken by J. L. Lassaigne. The shell of the crab having been carefully freed from all fleshy matter, was plunged in pure alcohol of the temperature of 59 degrees of Fahrenheit. It assumed a scarlet colour, which was instantly communicated to the alcohol. The alcoholic solution of the colouring matter was then decanted, and new doses of alcohol added, till it ceased to be coloured. The shells thus exhausted lost their property of becoming red in boiling water. From the spontaneous evaporation of the different alcoholic solutions, a red and apparently fatty matter was obtained. This matter has no smell, or sensible taste.

Lobsters are very prolific. Dr Baster counted the eggs under the tail of a female, and found that they amounted to 12,441, and there were besides many in the body yet unproduced. The lobster deposits her eggs in the sand, where they are soon hatched.

THE COMMON OR BLACK CLAWED CRAB.

This animal is too well known to require any description.

It is said that if any of the limbs of the crab are broken betwixt the joints, that the animal will apply one of the pincers of the great toes, and remove the broken member at the first joint above the fracture.

The power which these animals have of grasping with their great toes is truly wonderful; and instances have been known of their maintaining their hold with such pertinacity, that it has become necessary to break off the great toe before they would quit their hold. We remember to have read in a newspaper of a person having gone a crab-hunting upon a rocky coast, and having thrust his arm its full length into the crevice of a rock in search of them, was laid hold of by one of his fingers by a crab who held him in that situation until the influx of the tide drowned him.

About the middle of April, 1833, as a lady in the neighbourhood of Arbroath was in the act of dressing a crab, she found in its stomach a half guinea of the reign of George the Third, worn very thin, but some of the letters were so entire as to enable the reign to be traced.

In Kotzebue's Voyage of Discovery it is mentioned, that on the 6th December, 1815, Captain Kotzebue observed on the surface of the sea, near the island of St Catharine, a serpentine streak, about two fathoms broad, of a dark brown colour, which extended as far as the eye could reach. Upon examination it was found to be occasioned by an innumerable quantity of small crabs, and the seeds of a marine plant.

THE HERMIT CRAB.

This animal was termed the hermit crab by the ancient writers, and has been very well described by Aristotle; the moderns call it the soldier crab, from the idea of its dwelling in a tent, as it is parasitic, inhabiting empty turbinated shells, from the small shore nerite to the large whelk. But it is not a land species as Goldsmith supposes.

The size of the hermit crab is usually about four inches. It has no shell behind the claws, the legs and body only being provided with a shell, the whole hinder parts being covered by a rough skin, and terminating in a point.

The hermit crab has been well described by Oppian, whose lines are thus rendered into English verse,—

“ The hermit-fish, unarm'd by nature, left
 Helpless, and weak, grow strong by harmless theft.
 Fearful they stroll, and look with panting wish
 For the cast crust of some new-cover'd fish;
 Of such as empty lie, and deck the shore,
 Whose first, and rightful owners are no more.
 They make glad seizure of the vacant room,
 And count the borrow'd shell their native home :
 Screw their soft limbs to fit the winding case,
 And boldly herd with the crustaceous race ;
 Careless they enter the first empty cell ;
 Oft find the plaited whelk's indented shell ;
 And oft the deep dy'd purple forc'd by death
 To stranger fish the painted home bequeath.
 The whelk's etch'd coat is most with pleasure worn,
 Wide in extent, and yet but slightly borne.
 But when they growing more than fill the place,
 And find themselves hard-pinch'd in scanty space,
 Compell'd they quit the roof they lov'd before,
 And busy search around the pebbly shore,
 Till a commodious roomy seat be found,
 Such as the larger shell-fish living own'd.
 Oft cruel wars contending hermits wage,
 And long for the disputed shell engage,
 The strongest here the doubtful prize possess,
 Power gives the right, and all the claim profess.”

OF

THE TORTOISE AND ITS CONGENERS.

All the animals of this tribe are oviparous, and on their exclusion from the egg, are provided with two shells, one on their back, and another covering their abdominal region; with an opening at each end for the protrusion of their head, feet, and tail: all of which they can withdraw within their shell; which they generally do during their torpid state, or while asleep. When inclined to walk or swim, they extend their head and feet from under their armour. These parts, as well as the tail, are covered by a strong flexible skin, which is fixed within to the edges of the shells.

All those parts representing the ribs and other bones, except the vertebræ of the neck and tail alone, are immoveable.

The lungs are of considerable extent, and occupy the same cavity within the other viscera. The thorax being immoveable in the greater number of species, it is by the action of the mouth that the tortoise respires. Keeping the jaw shut, it alternately lowers and raises the hyoid bone. The first movement allows the air to enter the nostrils, and the tongue afterwards closing the interior opening, the second movement forces the air to penetrate into the lungs.

The whole tribe are very tenacious of life, and have been known to move without their head for many weeks. They require but little food, and are able to pass months, and even years without eating.

Mr John Murray, author of "Experimental Researches," gives us the following interesting observations on the torpidity of the tortoise:—

“The tortoise may be occasionally met with in gardens in this country. The geometrical tortoise I have certainly seen; but the occurrence is rare. One of these tortoises (the common,) laid three eggs in a garden at Montrose—one of these I forwarded to Professor Jameson, of Edinburgh.—The size to which the creature occasionally attains is quite monstrous. I remember some years ago, to have seen one, then semi-torpid, exhibited near Exeter-Change, London, which weighed several hundred weight. Its shell was proportionably thick, and its other dimensions bore a corresponding ratio. It was stated to be about *eight hundred years old.*”

Dr Davy took the temperature of the geometrical tortoise at Cape Town, in the month of May, the air being at sixty degrees, when he found the animal to be sixty-two degrees, five seconds. At Columbo, in Ceylon, on the 3d of March, he found the temperature to be eighty-seven degrees, while the air was eighty degrees.

Dr Borlace mentions a turtle that was taken on the coast of Cornwall, which measured six feet nine inches from the tip of the nose to the end of the shell, ten feet four inches from the extremities of the fore-fins extended, and was adjudged to weigh 800 pounds. The fine specimen which was exhibited in the Leverian Museum, was of similar weight, and was taken on the coast of Dorsetshire.

An ordinary turtle affords about eight pounds of tortoise-shell, and a large one from fifteen to twenty pounds. The shell is of little value, when the animal itself is less than one hundred and fifty pounds.

Tortoise-shell is formed into ornamental articles by first steeping it in boiling water, till it has acquired a proper softness, and immediately afterwards committing it to the pressure of a strong metallic mould of the form required; and where it is necessary to join the pieces so as to form a large extent, the edges of the pieces are first scraped or thinned, and being laid over each other during their heated state, are subjected to a strong pressure, by which means they are effectually joined or agglutinated. These are the methods also, by which the various ornaments of gold, silver, &c. are fixed to the tortoise-shell.

The Greeks and Romans were particularly partial to this

ornamental article, with which it was customary to decorate the doors and pillars of their houses, their beds, &c.

It is said that tortoise-shell is not capable of being melted. Yet M. de Lacépède affirms that it may be fused to a certain degree.

A singular circumstance occurred at Ludlow, with a tortoise, the property of Mr Jones, which was put in a convenient place to spend the winter. It was soon attacked by rats, which ate away its eyes, tongue, and all the under part of its throat, together with the windpipe. In that mutilated state it is supposed it had continued about three weeks prior to its being discovered. The most remarkable circumstance attending this is, that the animal did not exhibit the least signs of decomposition, nor was animation perceptible. It is, however, quite evident that it was alive, otherwise putridity would have ensued.

During the hybernation of animals, a temporary stagnation or suspension of active life ensues: their temperature becomes diminished, and the circulation of the blood slower; respiration less frequent, and sometimes entirely suspended: and the irritability and sensibility of the muscular and nervous powers are greatly diminished. Heat and air are the only agencies which rouse them from their death-like lethargy. Judging from the circumstance of toads, lizards and bats, being found alive in solid rocks, and in the centre of trees, this torpidity may endure for the lapse of ages, without the extinction of life.

Dr Bright says that land-tortoises are eaten in Hungary. "In the evening," says he, "I was taken to see an object of curiosity,—the garden kept for the rearing and preservation of land-tortoises. The *testudo orbicularis*, is the species most common about the lake, and the river Szala, which falls into it. Tortoises, likewise, occur in great numbers in various parts of Hungary, more particularly about Füxes Gyarmath, and the mouths of the river Theiss; and being deemed a delicacy for the table, are caught and kept in preserves. That of Keszthely encloses about an acre of land, intersected by trenches and ponds, in which the animals feed and enjoy themselves."

OF

TESTACEOUS SHELL FISH IN GENERAL.

IN tracing the natural history of this numerous and diversified class of animals, we find that they naturally arrange themselves under two distinct divisions from their physical conformation, namely, those having a head, and those without any visible head—while their covering or shells are in like manner chemically separated into two natural divisions, viz. those called porcellaneous shells, which are of an extremely compact texture, and have a fine enamelled surface, and those which for the most part are beautifully variegated.

From the best experiments which have been made, it seems clearly proved that the shells of testaceous animals are formed by the secretion of a peculiar fluid from certain pores on the surface of the bodies of the animals, which hardens, and becomes solid. Some shells are viviparous, as is the case with the greater number of bivalves, and a few of the univalves, but the greater proportion of the latter, are oviparous. From the various experiments made by Reaumur, he concludes that the shell is the last formed, that is, after the animal. If the eggs of testaceous animals are opened, the exterior parts of the embryo are found already developed, without the least appearance of shell. At what time the shell is really formed, we will not pretend to determine; but it is a known fact, that the animal is furnished with it when it emerges from the egg. In those bivalves which are viviparous, the shell of the young animal is formed, and has acquired a hard consistency, before it leaves the parent shell; we have particularly observed this in the *Tellina cornea*, a small shell found in fresh waters, somewhat shaped like a cockle, but without ribs. We have found,

on dissecting the animal, not fewer than eight young ones fully formed, with a shell on each.

In the spring of 1830, we had several minute shells of a closely allied species to the above—the *Pisidium obtusale*, which we kept in a tumbler for the purpose of investigating the form of the animal, and to ascertain if possible whether or not it was viviparous, which was denied to be the case by Pfeiffer, a celebrated German naturalist. On the 6th of February, we changed the water in the glass, and rendered it tepid, in order to induce the animals to protrude themselves. While in the act of watching them, we found that the favourable temperature brought on parturition; and we witnessed several of the animals produce their young in a perfect state. This operation was performed by the valves of the shells being opened, and then suddenly brought together with a kind of jerk, when the fœtus was ejected from between them to a little distance from the parent shells.

The greater number of animals inhabiting shells never change their covering, but add to it periodically step by step, as they increase in size, till they arrive at a state of full maturity, when they complete their covering.

There are two different ways in which a body may increase in volume. First, the particles of which it is composed pass through the body by means of circulation, and undergo certain chemical changes, which prepare them to form a part of that body. Or, secondly, the particles of which a body is composed may unite with it by juxta-position, without having been previously circulated or prepared within that body. It is in the manner first described, or what is termed *intus-susception*, or circulation through the body itself, that the growth of vegetables and animals is accomplished, and by the second mode, that an increase in the bulk of shells is produced: the first is the law of increase in organized bodies, and the latter that of inorganic matter.

The spines and other irregular protuberances, with which some shells are furnished, such as the *Murex haustellum*, and *Ramosus*, with many others, are produced by particular organs adapted to that purpose; and are always formed by the successive enlargement of the shell, and uniformly on the margin of the outer lip; the lengthened spines are produced by fringed

appendages, or cylindrical organs; they are all hollow and tubular, and are closed at their outer edges. The beak of the *Murex* and *Buccinum* is in like manner formed by a long cylindrical organ, which is supposed to be a feeler, is capable of extension and contraction, and is used occasionally by the animal to attach itself to solid bodies, as is the case with spines. In bivalve shells, which present a grooved and ribbed appearance, the whole anterior surface of the animal is grooved and channelled in the same manner, and from this the shell derives its structure. Those spines and knobs which rise immediately from the varices or longitudinal ribs, are produced by particular organs which surround the extremity of the neck, and stretch out from every part of its circumference.

But one of the most difficult things to account for in the formation of shells, is the ribs of the great ribbed cockle (*Cardium costatum*); the ribs of this species are very high and keel-shaped, while at the same time they are hollow. This shell is about four inches long, and of nearly the same breadth, furnished with eighteen high, sharp-edged ribs, grooved or hollow in the inside, from the apex to the base. The only way in which we can account for the formation of these hollow triangular ribs is to suppose that the margin of the anterior part of the body is in contact with the recent shell, the tips or elevations are formed, and are then open at the internal surface of the shell, but the posterior part of the body being hard and smooth, never comes in contact with the excavated parts of the ribs. On the contrary, as the testaceous matter is exerted from that part of the body, it is deposited in that part of the internal surface of the shell which it touches, stretching across the deep grooves, and forms the third and interior part of the triangular ribs.

There is no problem in natural history more difficult to explain in a satisfactory manner than the colouring of shells. We shall state what appears to us most satisfactory on this head; at the same time we confess there are still many important points which to us are inexplicable.

Land shells, particularly those of the *Helix nemoralis*, or common girdled snail, are subject to infinite variety of colour. The ground colours are either white, citron, yellow, flesh colour, olive, and are indeed subject to endless modifications of these with different other colours. Sometimes they have bands from one to six

in number, running spirally from the apex of the shell, gradually increasing in breadth as they descend towards the margin or lip. These bands are either dark umber brown, orange coloured brown, or chestnut brown; and some varieties are without bands.

As we formerly observed, according to Reaumur's ideas, the shelly matter is secreted from organs on the surface of the animal's body. But in certain places of the surface, the particles which produce different colours are separated, no doubt, from particular organs suited to the purpose. We cannot suppose, that the difference of the nature or figure of the particles can produce any particular figure, as we are not aware that colours are subject to assume particular forms. From the experiments of Reaumur, it appears almost certain, that the colouring matter proceeds from the glandular structure of the neck, and can be distinctly traced in the *Helix nemoralis*. Its body is whitish, excepting towards the neck, where the white inclines to yellow, citron, or flesh-colour, and where besides, there is a number of black or brown spots, equal in number to those on the shell, and arranged in the same direction and order. The existence, therefore, of these excretory organs can no longer be doubted, and as the stripes or other markings on shells enlarge as the shell increases in size, this must proceed from the enlargement of these organs with the growth of the animal. On this principle may be accounted for all the variety of configuration in the colours of shells, by supposing organs of all these different forms to be placed on the neck of the animal; according to this theory, all the inner surface of the shell, even those which are coloured in the inside, must be white, or, at least, partaking of the colour secreted by the vessels of the body, with the exception of the parts which can be reached by the neck of the animal when it returns within its shell.

In that beautiful division of shells termed Porcellaneous, a different process is necessary for the formation of colour and markings; and the animals inhabiting them are accordingly furnished with a membrane perfectly different in its construction from those of the animals of other shells. In this department the colouring matter is deposited in two different ways, and at different periods. In the formation of the shell itself, the ground colour is produced from the external glands, in the man-

ner in which the shells of the *Helix nemoralis*, and indeed all other testaceous shells, is produced, as above described. On the external surface of this, another layer is formed generally darker than that below, which, in its turn, obscures in a great measure the second coating. This finishing is said to be performed by two soft membranaceous wings, which, being protruded from each side of the opening of the shell, cover its whole surface. The longitudinal line, which is to be seen in various cowries, is supposed to be formed by the junction of the two wings where a smaller quantity of colouring matter has been deposited; but what is most difficult to account for, is the formation of the second or middle layer; for if we begin by examining a young shell of the *Cypræa Exanthema*, we shall find that the inside is a dark purple, and the outside is covered with transverse, alternate, interrupted bands of brown and lead-colour, with irregular white spots and eyes. The young of the *Cypræa tigris* is bluish-white in the inside; the outside is brown, with two or three paler bands. The young of the *Cypræa Arabica* is bluish-white on the inside, with a deep purplish outside, and two or three paler bands of brown. Now, if the centre coats of these shells are formed by the wings of the animal, it must either have the power of excreting at pleasure different colours from the glandular surface of these wings, or the glands must not only be changed in form, but also in arrangement, at different periods of the growth of the shell. And it is difficult to suppose, that a total change of the power of the wings can be effected; because such a change would be necessary whenever a new shell is formed, as it is pretty evident that all the *Cypræa* at least change their shells at different periods, or, in short, when the shell is too small to contain the animal.

However satisfactory the experiments of Reaumur may appear, we are of opinion that the animals inhabiting shells have the power of arranging the colours at will. In some species of bivalves, as in the *Ostrea* and *Spondylus* genera, the valves on which the shell rests while at the bottom of the ocean, are often colourless, or at least much paler than the upper valve; and it will be observed, that those shells which bury themselves in the sand, or in rocks, are totally colourless, or of a dingy white.

It appears, from every observation which has been made,

that the pearls found in different species of shells, are formed by the same secretion which produces the shell itself, and this is rendered very probable by all shells composed of mother-of-pearl occasionally producing pearls. Two different opinions have been entertained with regard to the cause of the production of pearls. The one, that they are merely morbid concretions; and the other, that they are owing to wounds, or some other external injury, or from worms making perforations in the shells. It is not improbable, that they are formed in both ways.

Various methods have been adopted to produce pearls by artificial means. In China, and many other parts of the East, the shells of the pearl mussel (*Meleagrina Margaritifera*), are perforated by means of a drill and a piece of brass wire introduced, rivetted on the outside like a nail; the shell is then placed in the sea, and almost invariably a large pearl is found formed on the wire inside the shell. Another mode is adopted, which sometimes proves successful. The shell is opened with great care, to avoid injuring the animal, and a small portion of the internal surface of the shell is scraped off; in its place is inserted a small spherical piece of mother-of-pearl, about the size of a small partridge shot. On this the animal forms a pearl, which serves as a nucleus. This is a Findland experiment. Either in the museum of Hunter, or in that of the Duchess of Portland, was to be seen a pearl shell, said to be from China, containing a string of pearls, apparently produced in the manner referred to, which is that of introducing iron wires at given distances through the shell of the animal, so as to irritate its flesh, without entering deep enough to kill it.

A correspondent in the Philosophical Journal says: " Pearls, in general, take the colour of the shell in which they are formed, being nothing else than the substance of the shell disposed in concentric layers, and tending more or less to a spherical form. From the great number of small pearls, which I have frequently collected from the small sea mussel (*Mytilus Edulis*), I find there is no part of the flesh of the animal in which pearls do not occur. The assertion made by Linnæus that the Chinese have a mode of producing by art real pearls in the living shell-fish, seemed to me so feasible, that I was led

to attempt a similar experiment, which I tried upon the large mussel of our ponds (*Anadonta Cygnea*), being the only convenient shell-fish which I could command in the central parts of England. I procured, therefore, the largest of these, from four to six inches long; but although the vigour of the animal promised me success, several of them died. I shall only relate what happened to the surviving ones. I drilled several holes in the most convex part of those shells, and introduced brass wires of a line in diameter. These wires had a sharp point, and were fixed in the shell in the way of cramps; some were disposed in straight lines, and others in such artificial forms as to show plainly, that the pearls so produced, if the experiment should succeed, were the work of design, and not the unmolested operation of nature. One of these which, I believe, is still preserved in the anatomical school at Oxford, is an indisputable proof of this, the points forming W. C. the initial letters of my name."

In the British museum, there is, or was a famous pink pearl, of a respectable size, and of an oval form: I, myself, have a small black pearl perfectly round and opaque, of which I do not know the history. The pink pearl of the British museum was probably produced by one of the large West India conchs.

OF UNIVALVE SHELLS.

It is from the *Buccinum Lapillus*, a native of Britain, and the *Murex Trunculus*, an inhabitant of the Mediterranean and Red Sea, and several other univalve shells, that the purple dye of the ancients, known by the name of Tyrean purple, was extracted. The animal of the *Ianthena Communis*, also exudes a purple fluid, which stains the hands of those who touch it.

M. de Martens states, that the annual export of snails (*Helix Pomatia*) from Ulm by the Danube, for the purpose of being used as food in the season of lent by the convents of Austria, amounted formerly to ten millions of these animals. They were fattened in the gardens in the neighbourhood. This species of snail is not the only one which has been used as food; for, before the revolution in France, they exported large

quantities of the *Helix Aspersa*, (the common large snail which inhabits gardens,) from the coasts of Aunis and Saintonge, in barrels for the Antilles. This species of commerce is now much diminished, though they are still sometimes sent to the Antilles and Senegal.

The consumption of snails is still very considerable in the departments of Charente, Inferieure, and Gironde. The consumption in the Isle de Rhé, is estimated in value at 25,000 francs; and at Marseilles, the commerce in these animals is considerable. The species eaten, are *Helix Rhodostoma*, *Aspersa*, and *Vermiculata*. In Spain, Italy, Turkey, and the Levant, the use of snails as food is common. It is only in Britain that the Roman conquerors have failed to leave a taste for a luxury which was so much used by the higher classes in ancient Rome, though it would be very desirable for the sake of the produce of our gardens, that some of the leaders of fashion in eating would, by introducing them at table, take the most effectual method of keeping our native species within due bounds.

The *Helix Pomatia* is the largest land-shell of Great Britain. It is not, however, an aboriginal, but was first introduced into the south of England by the Romans; and afterwards from Italy, about the middle of the sixteenth century, by Mr Howard of Albany, and turned out in Surrey, where it has increased very much, and is now the most common species in that and the neighbouring counties.

Snails are possessed of considerable reproductive powers. Spallanzani found, that the whole head might be cut off, and that in a certain time another would be formed. They are besides extremely tenacious of life.

We find the following singular account of the tenacity of life in the snail, in the Annual Register, by Mr Rowe: "I was at Mr Haddock's," says he, "at Wortham, in Kent, and was making a little shell-work tower, to stand on a cabinet in a long gallery. After having repaired two small amber temples to grace the corners, I was desirous of having some ornament for the front; and sea shells running short before I had finished, I recollected having seen some pretty large snails on the chalk hills there, and we all went out one evening to pick up some. On our return I procured a large China basin, and putting a

handful or two of them into it, filled it up with boiling water. I poured off the first water, and filled the bowl again. I then carried it into a summer-house in the garden, where I loved to work early in the morning before my friends were stirring. Next morning, how great was my surprise on entering the summer-house, to find the poor snails crawling about, some on the edge of the basin, some tumbling over, some on the table, and one or two actually eating paste that was to stick them on! I picked up every snail carefully, carried them into a field beyond the garden, where I make no doubt but they perfectly recovered their scalding."

Mr Woodward, of Diana Square, Norwich, says, "As I was sitting in my room, on the first floor, about nine in the evening, on the 4th October 1828, I was surprised with what I supposed to be the notes of a bird, under or upon the sill of the window. My impression was, that they somewhat resembled the notes of the wild duck in its nocturnal flight, and, at times, the twitter of a red-breast in quick succession. To be satisfied on the subject, I carefully removed the shutter, and, to my surprise, found it was a garden snail (*Helix Aspersa*), which, in drawing itself along the glass, had produced sounds similar to those elicited from the musical glasses."

The *Fusus Antiquus* is the largest spiral shell which inhabits the British seas, sometimes measuring nearly eight inches in length. In many places it is used by the poor as an article of food, and it is an excellent feast for cod and other fish. It lives in very deep water, and can only be got by the dredge; it is sometimes found adhering to fishermen's lines. We have a curious account of the mode in which fishermen procure this shell in Argyleshire, in the 8th vol. of the Statistical Account of Scotland. It is detailed in the following words: "At the beginning of the fishing, a dog is killed and singed, and the flesh, after rotting a little, is cut into small pieces and put into creels or baskets, made of hazel rods, for the purpose. These creels are sunk by means of stones thrown into them. The flesh of the dog, in its putrid state, is said to attract the whelk, which crawls up round the sides of the baskets, and getting in at the top, cannot get out again, owing to the shape of it, which is something like that of a wire mouse-trap. After the first day's fishing, the heads and cuticles of the cod,

with seal and dog fish, are put into the creels, which are visited every day, the whelks taken out and fresh bait of the same kind put in, there being no more occasion for dog's flesh."

The *Murex Tritonis*, or Triton's trumpet, is a large shell, often measuring sixteen inches in length and eight in breadth. It is used by the Africans, and many of the Eastern nations, as a bugle horn, and by the natives of New Zealand as a musical instrument. Two or three of the upper volutions are ground off, and from the number of its turnings which still remain, a considerable variety of notes can be produced. It is said, that several of the African tribes are very dexterous in the use of this as a musical instrument, and its sound can be heard at a great distance.

Perhaps, not the least striking feature in the history of Conchology, is the singular folly and extravagance of mankind in the high price which has been paid for rare and beautiful shells. One of the cones, called the *Cedo Nulli*, is so much esteemed, and still so rare, that it has brought one hundred guineas; and even now sells sometimes for fifty. Till within these few years, the many-stringed harp-shell sold at from twenty-five to thirty pounds; and the *Cypræa Aurora*, a native of the South seas, particularly in the vicinity of New Zealand, cannot be had for less than fifty pounds. The precious *Turbo*, or *Wentletrap*, (*Scalaria Preciosa*), was at one time of very great value. It is a conical shell, with eight rounded detached whirls, connected together by longitudinal ribs, of which eight are on the body whirl; the aperture or mouth is margined, and the whole shell of a milky-white colour. Its usual length is from an inch and a half to two inches. In the museum of Mr Bullock, London, there was a specimen, the largest known, which was brought home by Mr Webber from Amboyna, and was valued at 200 guineas at one time; and so much did Mr Webber esteem this specimen, that on one occasion he refused the sum of £500, offered for it by the earl of Bute. We saw this specimen sold at Bullock's sale, and it was bought by the niece of Mr Webber for £37 10s, being far beyond its value at the time. Specimens of nearly two inches in length can now be purchased for £1.

But, perhaps, the most interesting of the univalve shells, is the *Paper Nautilus* (*Argonauta Argo*), which we have pretty

fully noticed in the first volume of Goldsmith ; and to which has been ascribed the first hints for the art of navigation ; as alluded to by Pope, who says,

Learn of the little Nautilus to sail,
Spread the thin oar, and catch the driving gale.

This animal was well known to the ancients.

In some places where the sea is not agitated by winds, great numbers of these singular creatures may occasionally be seen sailing and sporting about.

Two feet they upward raise, and steady keep ;
These are the masts and rigging of the ship.
A membrane stretched between supplies the sail,
Bends from the masts, and swells before the gale.
The other two hang paddling o'er each side,
And serve for oars to row, and helm to guide.
'Tis thus they sail, pleas'd with the wanton game,
The fish, the sailor, and the ship the same.
But when the swimmers dread some danger near
The sportive pleasure yields to stronger fear :
No more they wanton drive before the blasts,
But strike the sails, and bring down all the masts,
The rolling waves their sinking shells o'erflow,
And dash them down again to sands below.

Le Vaillant observed several of these on the sea near the Cape of Good Hope ; and, as he was desirous of obtaining perfect specimens of the shells, he sent some of his people into the water to catch them ; but, when the men had got their hands within a certain distance, they always instantly sank, and, with all the art that could be employed, they were not able to lay hold of a single one. The instinct of the animal showed itself superior to all their subtilty ; and when their disappointed master called them away from their attempts, they expressed themselves not a little chagrined at being outwitted by a shell-fish. The Argonautas inhabit the Mediterranean, the coast of Africa, and the Indian ocean.

OF BIVALVE SHEELS.

COCKLES inhabit almost all sandy shores. Most of them are found immersed in the sand, at the depth of a few inches.

All the locomotive powers of these well known animals are concentrated in the triangular yellow foot, which is so conspicuous when we open the shells. This foot is not only capable of great inflation, but also of seizing with its point the glutinous matter which proceeds from it, drawing this into threads, and thereby in some measure securing the animals within the sand.

At the inlets of bays the cockles most abound, and also near the mouths of rivers. They are usually found immersed at the depth of two or three inches in the sand, the place of each being marked by a small circular depressed spot.

In some places they are so abundant that by the assistance of a spade a basket may be filled with them in a few minutes; in which cases they are souced in the water for the purpose of washing away the sand by which they are surrounded.

The GREAT SCALLOP has the power of progressive motion upon the land, and likewise of swimming on the surface of the water. When this animal happens to be deserted by the tide, it opens its shell to the full extent, then shuts it with a sudden jerk, often rising five or six inches from the ground. In this manner it tumbles forward until it regains the water.

When the sea is calm, troops of little fleets of scallops, it is said, are sometimes to be observed swimming on the surface. They elevate one valve above the surface of the water, which is used as a kind of sail, while they float on the other which remains on the surface.

The COMMON SCALLOP forms a delicious food when pickled, and is even more delicate than our oyster which has been cooked.

The JACOBAN SCALLOP is the one formerly worn by pilgrims on the front of their hats, to denote that they had crossed the sea, and is thus alluded to in Parnel's Hermit.

“ And fixed the scallop on his hat before.”

Lord Byron, in the conclusion of Childe Harold's Pilgrimage, also alludes to it,—

“ Not in vain
I've worn the sandall'd shoon and scallop'd shell.”

The GIANT CHAMA is the largest of testaceous animals, is

of great weight, and varies considerably in size. Linnæus informs us of one which weighed 532 Swedish pounds, (which is equal to 498 English;) he adds, that the animal has been known to furnish 120 men with a meal, and that if it shuts its valves suddenly it can snap a cable asunder. In the library of Sir Joseph Banks, there is a manuscript account of the dimensions of a specimen at Arno's vale, Ireland, which was brought from Tappanooly in Sumatra, one valve of which weighed 285 lbs. and the other 222 lbs. being a total of 507 lbs. The largest valve measured 4 feet 6 inches in length, 2 feet 5½ inches in breadth, and one foot in depth. A very large specimen is used at the church of St Sulpice in Paris, as a baptismal font. It was presented to Francis the First by the Venetians. The colour of the shell is yellowish white. Large pearls have been occasionally found in this shell; and one exhibited at Sir Joseph Banks' in June 1814, was valued at between two and three hundred pounds sterling.

OF MULTIVALVE SHELLS.

One of the most remarkable of the multivalve tribe is the *Teredo navalis*, or ship-worm. While the snail ranges the garden and the field, and marks its progress with the destruction of some of the fairest of the vegetable tribes; the ship-worm is justly the dread of the mariner. Secure as it were in its insignificance, it humbles the glory and pride of man; and labouring in secret, demolishes the noblest efforts of his ingenuity.

The shell of the ship-worm has two principal hemispherical valves, truncated and open at the end, and two smaller lanceolate accessory remote valves. The hinge is provided with a long incurvated tooth in each valve. The tube in which the animal resides is testaceous, and of a somewhat cylindrical form. When full grown it is from six to seven inches in length, of a grayish white colour, and about the thickness of a swan quill.

This animal, which is supposed to have been first introduced into our seas from India, has become most destructive to the bottoms of vessels: so much so, that all the ships of the

British navy are covered in the bottom with sheet copper, to prevent their being perforated by the teredo. It is not more than seventy years since they were first introduced, and Plymouth dock yard is literally infested with them; so that piles which have not been in the water more than four or five years, though of solid oak, are rendered nearly useless by their ravages.

In the year 1730, the inhabitants of the United Provinces were under serious alarm concerning these worms, which had made dreadful depredations in the piles that support the banks of many parts of their coasts. One of the persons who had the care of the coasts at that time, observed to his astonishment, that some of the timbers were, in the course only of a few months, made so full of holes, that they could be beaten to pieces with the least force.

Although when the mud was scraped off, the perforations did not appear much larger than to admit of a pin's head, yet the piles, on being split lengthways, were found full of large passages, or hollow, cylindrical ducts, each of which contained a worm, enclosed in its testaceous tube which it exactly filled.

We have in our possession a piece of oak, which was part of the bottom of a vessel that was in the Indian seas for twelve months, and is so completely destroyed by the perforations of these destructive creatures, that it is a wonder it did not founder at sea.

The most efficacious method which has hitherto been discovered, to preserve timber from the ravages of these worms, is that which is now adopted at the dock at Plymouth, to cover all the parts which are under water, with short broad-headed nails. These soon cover the whole surface with a strong coating of rust, which is found to be altogether impenetrable to the animals.

OF THE FROG TRIBE.

THE animals which compose this tribe are very generally dispersed over the globe. Their food is insects and worms; the whole of them catching their prey by means of their tongue, which is inserted into the front of the mouth, and, when the animal is at rest, lies with its point towards the throat. The moment the animal observes an insect within its reach, it suddenly throws out its tongue, and the little victim is secured on its glutinous extremity.

At the sitting of the Academy of Sciences of the 13th February 1826, M. Dutrochet read a memoir on the egg and tadpole of Batracian reptiles. Spallanzani had conjectured that the egg of the Batracian was nothing but the tadpole itself in a spherical form. This opinion was first doubted by M. Dutrochet; but future examination discovered to him, that, among this class of reptiles, the fœtus exists prior to its fecundation, which, as it is well known, does not occur till the extrusion of the egg; and that this fœtus is a kind of polypus—a simple globular sac, which, containing the emulsive matter for the nutrition of the tadpole, lengthens gradually into a plaited tube, with numerous convolutions. M. Dutrochet had formerly remarked in his examination of insects, that the larvæ of the bee and wasp might also be found in the egg before fecundation in a similar state.

This tribe is divided into three sections; namely, *Frogs*, *Hylæ*, and *Toads*. *Frogs* have smooth bodies, legs somewhat long, and discharge their eggs in a mass. They leap with great agility; and their hind legs are, in general, equal in length to the head and body.

Hylæ or *Tree Frogs* have their hinder legs very long, and

the toes unconnected. They are generally smaller than common frogs, and more elegant in their proportions. Their toes are furnished with little viscid pellets, by means of which they are enabled to attach themselves even to the under surfaces of polished bodies. They are extremely nimble, leap with great force, and are able to pursue insects, on which they feed, with great agility, even on the branches and leaves of trees.

Toads have their bodies puffed up and covered with warts. They have short legs, and can scarcely be said to leap. They avoid the light, and seldom leave their retreats in search of prey but during the night. These animals discharge their eggs in a long necklace like string.

During the night, the banks of the Congo, in the neighbourhood of Embomma, are perfectly alive with numberless frogs, and other noisy reptiles which keep up an incessant croaking till morning. These are of the species called the Bull frog.

The following paragraph is extracted from a late number of the *Belfast Chronicle*:—"As two gentlemen were sitting conversing on a causey pillar, near Bushmills, they were very much surprised by an unusually heavy shower of frogs, half formed, *falling* in all directions; some of which were preserved in spirits of wine, and are now exhibiting to the curious by the two resident apothecaries at Bushmills."

Mr Loudon, editor of the *Magazine of Natural History*, says, "When at Rouen, in September 1828, I was assured by an English family, resident there, that during a very heavy thunder shower, accompanied by violent wind, and almost midnight darkness, an innumerable multitude of young frogs fell on, and around the house. The roof, the window-sills, and the gravel walks, were covered with them. They were very small but perfectly formed; all dead; and the next day being excessively hot, they were dried up to so many points, or pills, about the size of the heads of pins. The most obvious way of accounting for this phenomenon, is by supposing the water and frogs of some adjacent ponds to have been taken up by wind in a sort of whirl, or tornado."

We have records of this kind in all ages. A shower of young herrings fell in Kinross-shire, about ten years ago, many of which were picked up in the fields around Loch-Leven, by persons with whom we are acquainted. The reason why frogs go

abroad during showers, is thus accounted for by Dr Townson, founded on certain experiments which he instituted regarding them. He says "that frogs take in their supply of liquid through the skin alone, all the aqueous fluids which they imbibe being absorbed by the skin, and all they reject being transpired through it. One frog, in an hour and a half absorbed nearly its own weight of water."

In the *Journal de Moselle*, it is said, that the city of Metz has been lately afflicted by one among the seven plagues of Egypt, namely, frogs; certain streets were filled with these animals, and no one was able to conjecture from whence they came, until it was explained by a dealer in frogs applying to the tribunals for the recovery of his property. He had shut up about six thousand frogs, in a particular place belonging to the fish market, where they were discovered by some children, who took part away to sell, and on leaving the troughs in the fish-market, forgot to close them. Profiting by the opening thus left, the frogs began to spread themselves in various parts, and even got into some of the neighbouring houses, whose inhabitants found much difficulty in ejecting their unwelcome intruders.

A butcher in Glasgow found an ordinary sized living frog in the stomach of a cow, which he had just killed. When laid down, it was full of spirit, and leapt about the slaughter-house, to the astonishment of a considerable crowd. The cow was killed between three and four o'clock in the afternoon; and supposing she had swallowed the frog when drinking, it must have remained a considerable time alive in her stomach, as the cow had got neither meat nor drink, since before six o'clock in the morning.

"At Schwetzingen in Germany," says Mr Loudon, "in the post-house, we witnessed for the first time, what we have since seen frequently, an amusing application of zoological knowledge, for the purpose of prognosticating the weather. Two frogs, of the species *Rana arborea*, are kept in a crystal jar, about eighteen inches high, and six inches in diameter, with a depth of three or four inches of water at the bottom, and a small ladder reaching to the top of the jar. On the approach of dry weather, the frogs mount up the ladder; but, when moisture is expected, they descend into the water. These animals are of a bright

green, and in their wild state here, climb the trees in search of insects, and make a peculiar singing noise before rain. In the jar they get no other food than now and then a fly, one of which, we were assured, would serve a frog a week, though it will eat from six to twelve in a day, if it can get them. In catching the flies put alive into the jar, the frogs display great adroitness."

It is amusing to see a frog when he first notices his prey; he very much resembles a pointer-dog setting his game. He makes a dead set at the creature, oftentimes too (if the relative positions of the two animals require it), with a slight bend, or inclination, more or less, of the fore part of the body, to one side, just as we often see a pointer turn suddenly, when the game is on one side of him, and he has approached very near before he has perceived it. After a pause of some seconds or more, the frog makes a dart at the worm, endeavouring to seize it with his mouth; in this attempt he frequently fails more than once; and generally waits for a short interval, acting the pointer, as it were, between each attack. Having succeeded at last in getting the worm into his mouth, if it be a large one, he is unable to swallow it immediately and all at once; and the portion of the worm which yet remains unswallowed, and extended out of the mouth of its destroyer, of course writhes about and struggles with a tortuous motion. With much, but somewhat grotesque dexterity, the frog then employs his two forefeet, shoving and bandying the worm, first with one and then with the other, in order to keep it as nearly as may be in the centre of his mouth, till the whole is swallowed.

Mr Jesse says, "I may mention a curious observation made in regard to some frogs that had fallen down a small area, which gave light to one of the windows of my house. The top of the area being on a level with the ground, was covered with some iron bars, through which the frogs fell. During dry and warm weather, when they could not absorb much moisture, I observed them to appear almost torpid; but when it rained they became impatient of their confinement, and endeavoured to make their escape, which they did in the following manner. The wall of the area was about five feet in height, and plastered and whitewashed, as smooth as the ceiling of a room. Upon this surface the frogs soon found that their claws would render them little or no assistance; they therefore con-

tracted their large feet, so as to make a hollow in the centre, and by means of the moisture which they had imbibed in consequence of the rain, they contrived to produce a vacuum, so that by the pressure of the air on the extended feet, (in the same way that we see boys take up a stone by means of a piece of wet leather fastened to a string) they ascended the wall and made their escape. This happened constantly in the course of three years."

THE TOAD.

The common food of the toad is small worms, and insects of every description; but its favourite nutriment consists of *Apis Mellificas*, the earth bee and common wasp. When a toad strikes at any of these insects, however, deglutition does not immediately take place, as in other cases, but the mandibles remain closely compressed for a few seconds, in which time the bee, or wasp is killed, and all danger of being stung avoided. The mandibles are provided with two protuberances, which appear to be destined for this office. Although capable of sustaining long abstinence, the toad is a voracious feeder, when opportunity offers. To a middle sized one nine wasps have been given, the one immediately after the other; the tenth it refused, but in the afternoon of the same day it took eight more. To see the toad display its full energy of character, it is necessary to discover it in its place of retirement for the day, and, if possible, unperceived, to drop an insect within its sight; it immediately arouses from its apparent torpor, its beautiful eyes sparkle, it moves with alacrity to its prey, and assumes a degree of animation incompatible with its general sluggish appearance. When arrived at a proper distance, it makes a full stop, and, in the attitude of a pointer, motionless, eyes its destined victim for a few seconds, when it darts out its tongue upon it, and lodges it in its throat with a velocity which the eye can scarcely follow. It sometimes happens to make an ineffectual stroke, and stuns the insect without gorging it, but never makes a second stroke till the insect resumes motion. It uniformly refuses to feed on dead insects, however recent. For several years a toad took up its

abode, during the summer season, under an inverted garden-pot in Mr Fothergill's garden, which had a part of its rim broken out, making its appearance in the latter end of May, and retreating about the middle of September. This toad, there is reason to believe, distinguished the persons in Mr Fothergill's family, who daily fed it, from strangers, as it would permit them to pat and stroke it. To try the indiscriminating appetite of these animals, Mr Fothergill has dropped before a full grown toad, a young one of its own species, about three-fourths of an inch long, and the instant it began to move off, it was eagerly struck at, and swallowed: but on Mr Fothergill repeating the experiment, he found that more will refuse than devour the young of their own species. When living minnows (*Cyprinus Phoxinus*) were dropped before a toad, they were struck at and swallowed in the same manner. These experiments were made on toads at full liberty, and met with accidentally. Toads generally return to their winter quarters about the time that swallows disappear. They have been seen burrowing in the ground backwards, by the alternate motion of their hind legs.

Not the least wonderful part of the history of the toad, is the circumstance of its being frequently found alive in the heart of solid rocks, and internal cavities of trees. In 1777, Herrisant made some interesting experiments on this subject, as did also Dr Edwards in 1817, which are detailed in the 4th volume of Goldsmith. Professor Buckland has more lately experimented on this curious subject. Two blocks of stone were taken, one of porous oolite limestone, and one of a compact silicious sandstone; twelve cells, five inches wide, and six inches deep were cut in the sandstone, and twelve others five inches wide, and twelve inches deep in limestone. In November 1825, one toad was placed in each of the twenty-four cells, its weight being previously ascertained with care. A glass plate was placed over each cell as a cover, with a circular slate above to protect it; and the two blocks of stone, with the immured toads, were buried in Dr Buckland's garden under three feet of earth. They were uncovered after the lapse of a year, in December, 1826. All the toads in the small cells of compact sandstone were dead, and their bodies so much decayed as to prove that they had been dead for some months. The greater number of the toads

in the larger cells of porous limestone were alive; but they were all a good deal emaciated, except two, which had increased in weight, the one from one thousand one hundred and eighty-five grains, to one thousand two hundred and sixty-five, the other from nine hundred and eighty-eight to one thousand one hundred and sixteen. With regard to these two, Dr Buckland thinks they had both been nourished by insects, which they got into the one cell through a crack found in the glass cover, and into the other probably by some small aperture in the luting which was not carefully examined. No insects were found in either cell, but an assemblage of insects was found on the outside of another glass, and a number within one of the cells whose cover was cracked, and where the animal was dead. Of the emaciated toads, one had diminished in weight from nine hundred and thirty-six to six hundred and fifty-two. "The results of the experiments," says Dr Buckland, "amount to this:—all the toads, both large and small, enclosed in the stone, and the small toads enclosed in the limestone also, were dead at the end of thirteen months. Before the expiration of the second year, all the large ones also were dead. These were examined several times during the second year, through the glass covers of the cells, but without removing them to admit air. They appeared always awake, with their eyes open, and never in a state of torpor, their meagerness increasing at each interval, until at length they were found dead. Those which had gained an increase of weight at the end of the first year, and were then carefully closed up again, were emaciated and dead before the expiration of the second year." Four toads enclosed in cavities cut in the trunk of an apple tree, and closed up by plugs so tightly as to exclude insects, and "apparently air," were found dead at the end of a year. The phenomena, then, of live toads enclosed in rocks, Dr Buckland explains in this way: the young toad, as soon as it leaves its tadpole state, and emerges from the water, seeks shelter in holes and crevices of rocks and trees. One may thus enter a small opening in a rock, and when there find food, by catching the insects which seek shelter in the same retreat; and its increase of size may prevent it from getting out again by the same opening. It is probable that there are some small apertures in all the stones in which toads are found, though they escape the

notice of the workmen, who have no motive to induce them to make a narrow examination. In other cases, there may have been an opening which had been closed up, after the animal was immured, by stalactitic incrustation. Deprived of food and air, it might fall into that state of torpor, or suspended animation, to which certain animals are subject in winter; but how long it might continue in this state is uncertain.

The Rev. George Young, in his "Geological Survey of the Yorkshire coasts," second edition, 1828, mentions several recent instances of living toads having been found within solid blocks of sandstone. "We are the more particular in recording these facts," he observes, "because some modern philosophers have attempted to explode such accounts as wholly fabulous." Mr Jesse informs us, that he knew a gentleman who put a toad into a small flower-pot, and secured it, so that no insect could penetrate it, and then buried it so deep in his garden that it was secured against the influence of frost. At the end of twenty years he took it up and found the toad increased in bulk and health!

We find it mentioned in the 13th Number of the Edinburgh Philosophical Journal, that "a specimen of a toad, which was taken alive from the centre of a solid mass of solid stone, has been sent to the college museum of Edinburgh, by Lord Duncan."

"I remember," says Mr Jesse, "some years ago getting up into a mulberry-tree, and finding in the fork of the two main branches, a large toad almost embedded in the bark of the tree, which had grown over it so much that he was quite unable to extricate himself, and would probably in time be completely covered over with the bark. Indeed, as the tree increased in size, there seems to be no reason why the toad should not in process of time become embedded in the tree itself, as was the case with the end of an oak rail that had been inserted into an elm-tree, which stood close to a public foot path. This, being broken off and grown over, was, on the tree being felled, and sawn in two, found nearly in the centre of it. The two circumstances together may explain the curious fact of toads having been found alive in the middle of trees, by showing that the bark having once covered them, the process of growth in the tree would annually convey the toad more nearly to the centre of it,

as happened with the piece of oak-rail; and by showing that toads and other amphibia, can exist on the absorption of fluids by the skin alone." Which opinion seems to be supported by the experiments performed on frogs.

It is mentioned in the Transactions of the Academy of Sciences at Paris, that a live toad was found in the centre of an elm-tree, and another in an oak. Both trees were quite sound and in a healthy condition. To these facts we may add another. It is related by our friend Sir Thomas Dick Lauder, who is a close observer of nature, that on his estate of Fountain-hall, East Lothian, a large toad was found in the heart of a smooth, straight Beech tree, at the height of 30 feet from the ground. It was contained in a circular hole. In the Annual Register, there is a well authenticated account of a toad being found in the middle of a large and hard stone, having no visible aperture by which it could get there. Mr Jesse was informed by the respectable proprietor of a coal mine in Staffordshire, that while his men were working into a stratum of thick coal at a very considerable depth, they found three live ells in a small deposit of water in the centre of a block of coal. They died as soon as they were taken out of it. "Another case," says he, "was mentioned to me by an eminent physician. A wet spot had always been observed on a free-stone mantle-piece, which afterwards cracked at that place, and upon its being taken down, a toad was found in it dead; but its death was probably owing to the want of that moisture which it had been enabled to imbibe when the stone was in the quarry, and which gradually lessened by the action of the fire, as from the moisture which appeared on that part of the mantle-piece, some time after it was put up, there seems but little reason to doubt that the toad was alive at that time."

A gentleman who resides at Keswick, Cumberland, one evening in the latter end of July, observed a rustling among the strawberries in his garden, and on examining what it was, found that a toad had just seized a field-mouse, which had got on the toad's back, scratching and biting to get released, but in vain. The toad kept his hold, and as the strength of the mouse failed, he gradually drew the unfortunate little animal into his mouth, and gorged him.

OF

LIZARDS AND THEIR CONGENERS.

THIS tribe of animals has been found in very different situations by different naturalists. The arrangement which has more recently been adopted is that of Brogniart. It was followed by Cuvier in his *Animal Kingdom*: it succeeds the birds. Brogniart, in his classification of reptiles, derived his orders from the difference of physical construction, in the principal organs, such as those of respiration and generation; and combined these characters with others which had the next importance to the animal functions, such as the organs of touch, of digestion and of locomotion.

The larger species of the lizard tribe are inhabitants of the warmer countries of the globe. The larger kinds prey upon animals, and the smaller species upon insects.

THE CROCODILE.

This animal is found on the banks of the Nile, Niger, and Ganges. As he lives chiefly at the bottom of the rivers which he frequents, he has the power of opening the upper jaw as well as the under one; and thus with greater facility catches the fish or water-fowl which swim over him.

Park says, "Crocodiles are very numerous in the river Congo, and the natives say voracious; but they do not seem to dread them; on the contrary, I have observed people bathing where crocodiles were swimming a short time before. They may be

seen every hour of the day, sunning themselves upon the sand-banks. They appear, however, to be of the smaller species, and not so numerous as at Old Calabar, where they continually float past the shipping like large grey pieces of timber, and are there so bold that they frequently seize people in the small canoes. In Old Calabar river, I once observed a crocodile swimming with a large cat-fish in its mouth to the opposite shore. It held the fish by the head, whilst the body was thrown into a perpendicular position. I watched it with the spy-glass until it had dragged the fish upon the mud bank, and commenced its meal. A party armed with muskets was then despatched from the ship to kill it, but on the approach of the boat it retreated to the water with the fish in its mouth. From this I am induced to think that the crocodile cannot devour its prey in the water."

In crossing the Ba-Woolima, Mr Park's attendant, Isaaco, met with a strange and nearly fatal adventure. In attempting to drive six asses across the river, just as he had reached the middle, a crocodile rose close to him, and instantly seizing him by the left thigh, pulled him under water. With wonderful presence of mind, he felt the head of the animal and thrust his finger into its eye. This forced it to quit its hold; but it soon however returned to the charge, and seizing him by the other thigh, again pulled him under water. Isaaco had recourse to the same expedient, and thrust his fingers a second time into its eyes with such force, that it again quitted him, rose to the surface, floundered about as if stupid, and then swam down the stream. Isaaco in the meantime reached the bank of the river bleeding very much; the wound in his left thigh being four inches long, that on the right somewhat less, but very deep, besides several single teeth marks on his back. In six days, however, he recovered, so as to be able to travel.

In the sitting of the Academy of Sciences at Paris, of the 6th February 1826, M. Geoffroy Saint Hilaire, presented from M. Caillaud, a mummy crocodile, seven feet, one inch in length, in a state of perfect preservation. He had formerly maintained, in opposition to the opinion of Cuvier, that there were two species of Egyptian crocodile—one, a sacred animal—mild and of smaller size, the other the well-known crocodile of the Nile; while Baron Cuvier was rather inclined to suppose

that the second species was the crocodile of St Domingo. The inspection of this mummy seems to have decided the question. This second species differs from the other chiefly in the structure of the head, the jaws being more lengthened, and indicating a creature of less strength. It was known among the ancients by the name of *Suchus*. A live individual of this species was exhibited at Paris in 1823.

At Chantilly, in France, there was in the year 1828, a crocodile, so perfectly tame and well-disposed, that he was caressed with impunity by the keeper, who endeavoured, although not always with success, to induce visitors to follow his example. He never attempted to bite any one, but seemed pleased by being fondled.

THE ALLIGATOR.

The alligator is similar in habits and appearance to the crocodile. It is found only in America, and is most abundant in the tropical regions. In the height of the dry season in those torrid regions all animated nature pants with consuming thirst. A party of the wood cutters, English and Irish, went on one occasion to hunt in the neighbourhood of a lake called Pies Pond in Beef Island, one of the smaller islands of the Bay of Campeachy. To this pond the wild cattle repaired in herds to drink, and here the hunters lay in wait for them. The chase had been prosecuted with great success for a week, when an Irishman of the party going into the water during the day, stumbled upon an alligator, which seized him by the knee. His cries alarmed his companions, who fearing he had been seized by the Spaniards, to whom the island belonged, instead of affording assistance, fled from the huts which they had erected. The Irishman seeing no appearance of help, with happy presence of mind (a quality which the natives of that country possess in an eminent degree) quietly waited till the alligator loosened his teeth to take a new and surer hold; and when it did so, snatched away his knee, interposing the butt-end of his gun in its stead, which the animal seized so firmly that it was jerked out of the man's hand and carried off. He then crawled up a

neighbouring tree, again shouting after his comrades who now found courage to return. His gun was found next day dragged ten or twelve paces from the place where it had been seized by the alligator.

Mr Jesse says, "the most singular instance of attachment between two animals, whose nature and habits were most opposite, was related to me by a person on whose veracity I can place the greatest reliance. Before he took up his abode at Hampden-court, he had resided for nine years in the American States, where he superintended the execution of some extensive works for the American government. One of these works consisted in the erection of a beacon in a swamp in one of the rivers, where he caught a young alligator. This animal he made so perfectly tame, that it followed him about the house like a dog, scrambling up the stairs after him, and showing much affection and docility. Its great favourite, however, was a cat, and the friendship was mutual. When the cat was reposing herself before the fire, (this was at New York) the alligator would lay himself down, place his head upon the cat, and in this attitude go to sleep. If the cat was absent, the alligator was restless; but he always appeared happy when the cat was near him. The only instance in which he showed any ferocity was in attacking a fox, which was tied up in the yard. Probably, however, the fox resented some playful advances, which the other had made, and thus called forth the anger of the alligator. In attacking the fox he did not make use of his mouth, but beat him with so much severity with his tail, that had not the chain which confined the fox broken, he would probably have killed him. The alligator was fed on raw flesh, and sometimes with milk, for which he showed great fondness. In cold weather he was shut up in a box, with wool in it; but having been forgotten one frosty night, he was found dead in the morning." This is not the only instance of amphibious animals becoming tame by gentle treatment.

For an account of the manner of catching alligators, with animadversions on Mr Waterton's adventures among them, the reader is referred to the Notes upon Goldsmith.

THE AQUATIC SALAMANDER.

The propagation of this species is a curious subject of investigation, and considerable light has been thrown on it by Dr Rusconi. He noticed that one of his salamanders approached towards the leaf of a plant, and directed its snout to it, as if wishing to smell it. He then saw the animal move gently on the leaf, in the direction of its breadth, and resting upon it, push back the hind-limbs, so as to fold backward and enclose between its feet the leaf on which it rested. It remained in this position about a minute, and then withdrew, leaving the leaf doubled in such a way that its apex was turned back in the petiole. Scarcely had three minutes elapsed before it approached towards another leaf, and performed the same operation. These leaves were unable to redress themselves, because their two surfaces were held together by a kind of glue, with which the envelope of each egg is covered. The eggs of salamanders do not escape from the animal like strings of beads, as some naturalists have asserted nor do they fall to the bottom of the water, as Spallanzani with so much confidence maintained. Rusconi discovered in one leaf a young salamander already evolved, and which exhibited signs of life by moving and changing its position.

The little animal, which is opaque, and formed apparently of a soft and homogeneous substance, while yet retained in its envelope, becomes gradually transparent almost as soon as he has escaped from it, so that, if the naturalist has been able to see through the transparent walls of the envelope, the development of the exterior parts only, he now sees the formation, both of the external and internal parts together. He discovers the heart of the animal, and follows its contractions and dilations: he perceives the stomach, and recognises its form and position: his eye is able to distinguish the intestinal canal, which at first extends in a straight line from one extremity of the abdomen to the other, afterwards assumes serpentine convolutions, and ends by a formation of many of these: next he sees the liver, whose development accompanies that of the stomach and intestines, to which it is subservient; and, lastly, he sees the lungs take their form and place, always filled with air,

and so transparent that one might believe the animal has, on the two sides of the trunk, two bubbles of air, which gradually dilate and elongate from before, backward.

When the organs of digestion have acquired the size necessary for the exercise of their functions, the curious spectator perceives in the little salamander, whose life hitherto has been purely organic or vegetative, the life of *relation*, or the *animal* life, to begin. At this epoch, the movements of the young animal are no longer automatic, or the result simply of its internal organization, but they are also the consequence of sensations which the surrounding objects cause it to experience. In truth it now avoids and removes from those objects from which it dreads inconvenience or pain, and approaches those from which it hopes to receive advantage and pleasure. We see it, at this period, watch the minuter insects which it perceives swimming in the water, direct its little snout towards them, pursue them with address, and dart upon them with surprising agility. When it is keenly pressed by hunger, it even attacks its comrades, and seeks its nourishment by devouring their gills and tail.

Recently, as David Virtue, mason, Auchtertool, a village about four miles from Kirkcaldy, in Scotland, was dressing a heavy barley millstone from a large block, after cutting away a part, he found a lizard of this species embedded in the stone. It was about an inch and a quarter long, of a brownish yellow colour, and had a round head with bright sparkling projecting eyes. When first exposed it was apparently dead; but after being about five minutes exposed to the air, it showed signs of life. It soon became lively, and ran about with much celerity; and about half an hour after the discovery, was brushed off the stone, and killed. When found, it was coiled up in a round cavity of its own form, being an exact impression of the animal. There were about fourteen feet of earth above the rock, and the block in which the lizard was found was seven or eight feet in the rock; so that the whole depth of the animal from the surface was twenty one or twenty two feet. The stone had no fissure, was quite hard, and one of the best which is got from the quarry of Cullaloe; the stone is reckoned one of the hardest in Scotland.

THE PROTEUS ANGUINUS.

This animal has much excited the curiosity of zoologists, and many points in its natural history and anatomy still remain undecided. It appears that the first knowledge of this animal was communicated to the public by Dr Laurente, in 1768. Cuvier first discovered the female, and established on a solid foundation that the proteus was not a larva, as many had supposed, but a perfect animal; an opinion now generally followed, and confirmed by the recent observations of Rudolphi.

The proteus anguinus lives and multiplies in the water of certain subterranean caverns of Carniola. The province in which these caverns occur is divided by a chain of mountains of secondary or transition limestone, on which rest many hills of posterior formation. Both in the mountains and hills are many caverns, and subterraneous passages stretching in various directions, and lying in different places. These caverns communicate with one another, so that the water first collected in those at a higher level, falls down and circulates through subterraneous channels, till it settles in the lower caverns, some of which are of vast size and depth. Two of the most remarkable of these caverns are situated near Adelsberg, a village lying midway between Triest and Lubiona. One of them, called the cavern of Adelsberg, is close to the village, and the other, named the cavern of Maddlena, is only a few miles distant. It is in this last that the peasants go to fish for the protei. On the 2d of August 1816, Signior Configliachi, and Dr Rusconi, attended by three peasants furnished with torches, and with a small net in the shape of a bag, fixed to the end of a staff, prepared to enter this cavern. At 5 o'clock A.M. the temperature of the external air at the mouth of the cavern was 48° Fahrenheit. As they descended, they passed through specious apartments, some of them clothed with stalactites and calc-spar, which reflected with great brilliancy the light of the torches, and exhibited a magnificent appearance. Others appeared like pits of mud, which rendered the walking very inconvenient. At length they reached a stagnant pond, about 30 feet broad, and at a depth below the surface of about 170 fathoms. In this pond they saw one proteus, but did not suc-

ceed in taking him; from the water being turbid, and in too great quantity, in consequence of heavy rains the day before, they were obliged to reascend, after having been two hours in the cavern without taking a single proteus. The temperature of the water in this pond was 55° , and that of the air of the cavern was stationary at $45^{\circ} 5'$, while the thermometer, left in the free air at the mouth of the cavern, had risen from 48° to 59° . The specific gravity of the water in the pond was to that of distilled water, at the same temperature as $108^{\circ} 5'$ to 100° . These animals are found in other pits in Carniola and elsewhere.

We have given a figure of this remarkable reptile, plate 65, figure 9. Vol. IV. The eyes of the animal are situated, and we might say buried between the anterior extremity of the masseter muscles, which go to be inserted in the lower jaw, and the posterior extremity of the canal of the nostrils. They are inconceivably small, and are placed not in the orbit formed by the bone, but in a web or tissue, consisting of venous and nervous ramifications.

Configliachi and Rusconi had no opportunity of becoming acquainted with these extraordinary animals in their native caverns; but they give a very interesting and detailed account of the habits of several which they kept in vessels within doors for more than two years. It has not yet been ascertained by these eminent naturalists to what age or size the proteus arrives. None of those kept by them exceeded twelve inches in length, and the smallest they have heard of was only four. It is, however, probable that 14 inches is their full size. Schreibers had one in 1801, which measured 13 inches. The Archduke John of Austria, kept in a subterranean grotto, constructed for the purpose, several of these animals, one of which lived eight years, and acquired a size greater than ordinary.

When viewed alive and in water, the body of the proteus appears at first of a cylindrical form, but when more attentively surveyed, it is seen to be somewhat flattened on the sides, especially towards the tail, which, beyond the lower limbs, is reduced at length to the shape of a spatula. The back and head of the animal are of a whitish-red colour, which, on the sides of the tail, inclines to violet. The belly, on the contrary, is white, though even there in the region of the liver, it has a bluish cast, like that of the human veins, seen through a very fine and deli-

cate skin. From whitish-red, the skin passes by degrees to violet; so that to preserve the natural colour, it is necessary to keep the animal always in obscurity.

The skin of this reptile, like that of eels, is every where besmeared with a violet viscid mucus; and when viewed with a lens, it is observed to be studded with minute reddish spots, and with innumerable pores. By reason of this mucosity, the proteus easily slides out of the hand, and while alive, is with difficulty fixed down to any substance for the purpose of dissection.

The mouth differs from that of other reptiles. The upper lip after covering the teeth is continued a little downward over the under one in front; and, on the other hand, the under lip is continued upward over the upper one on the sides of the mouth.

When a proteus that has been kept some time in darkness is observed with caution, he is always found to be resting quietly at the bottom of the vessel. But if the vessel be quickly uncovered, he suddenly begins to move, is much agitated, and seeks always that part of the vessel which is darkest. If now that part of the vessel be exposed to the light, the animal again begins to move, and soon his gills assume a redder tint, and the rest of the body also becomes of a redder hue. In fact, the light gives pain, and the animal exerts itself to avoid it. His disposition to avoid light is the more remarkable, as the eyes of this animal are incredibly small, and so buried beneath the skin, that a person even apprized of their situation, must use great diligence to discover them.

This reptile feeds on worms, small bivalves, and snails. In this he resembles the salamander, but he bears fasting much better, being able to live two years and even more without aliment. When taken from his natural habitation and exposed to the vicissitudes of the season, like other perfect reptiles he hides himself during the winter, is inert, and refuses food.

The proteus does not live long, if he is taken out of the water. When he becomes dry, he dies more or less quickly, according as the season is more or less warm, being less able to sustain life under such circumstances than fishes. But if the proteus die more speedily when out of water; in water, on the contrary, he lives better than fishes, since, *cæteris paribus*, he has not such frequent need of a renewal of the water as fishes

have. When placed in a small vessel, at the temperature of $65^{\circ} 5'$, the proteus, like fishes, rises at times to the surface to take in air by the mouth. The necessity of inspiring air from time to time, is more or less urgent, according as the water is more or less impure; and it has a more direct relation to the temperature than to the quantity of water.

Configliachi and Rusconi enclosed a proteus in a box perforated with holes, which was then sunk in a large lake, and kept for three months and a half beneath the surface. At the end of this time, on examining the box, the animal was found extremely lively, which clearly showed, that submersion in water for a long period had in no way injured its vital economy. The temperature of the water for a long time varied little from 66 degrees. For four months together two protis have been kept in a small vessel of water of the temperature of from 43° to $45^{\circ} 5'$, and have lived very well, although the water had not been once changed.

With regard to the faculties of sense, those of hearing and seeing appear to be very weak; but those of touch and of smell, particularly the latter, exquisitely acute. When some small fishes were put into the vessel containing a proteus, it was amusing to see the animal direct his snout towards his prey, though he could not possibly see it, and afterwards seize it with the greatest celerity when a fish passed near him. But it may be asked, if the sense of sight be so weak, why is it that this animal so anxiously avoids the light? It is probable that the constant desire of obscurity arises from the painful action of light, not on the eye but on the skin. From the experiments, however, of Rudolphi, it appears that this animal may, in time, be brought to bear the presence of light.

Rusconi is of opinion, that the proteus is a perfect reptile, differing from all other reptiles, in not having, like them, a simple respiration, but resembling fishes, in respiring by means of branchi or gills.

THE SIRENA LACERTINA.

This reptile occupies the same class and order as the Proteus Anguinus, and forms another genus, consisting of one spe-

cies only. It is said like the proteus to retain through its whole life, three gills on each side of the neck, and to possess at the same time lungs internally.

THE CHAMELEON.

In the "Oriental Memoirs," Mr Forbes mentions, that when he was at Dazagen in Corean, he kept a chameleon for several weeks. This animal was singularly affected by every thing black. The skirting board of the room was black, and the creature most carefully avoided it, but if he accidentally came near it, or if a black hat were placed in his way, he shrunk, and became black as jet. It was quite evident by the care he took to avoid these objects, which occasioned this change, that the effort was painful to him; the colour seemed to operate like a poison. The buffalo and bull seem to have a similar antipathy towards scarlet.

OF SERPENTS IN GENERAL.

SERPENTS, or what are now termed Ophidian reptiles, have no feet; and consequently form that division to which the name of reptiles is more properly applied.

Baron Cuvier has made three families of this order. The first he terms Anguines; their tongues are cleft at the tip and short; the eye is provided with three eyelids. The second family embraces all those genera which are destitute of a breast bone, or shoulder bones, whose ribs surround a great part of the circumference of the trunk, and having the vertebræ attached to one another by a concave and convex surface. They are destitute of the third eyelid and tympanum. Although provided with a large head, the cranium forms but a small portion of it. Their eyes are fixed, and they have no external ear. They have short nostrils but little developed, and usually situated at the extremity or sides of the muzzle. The tongue is soft, moist, long, and forked, and is subject to considerable variety of form. Their sense of touch is much blunted in consequence of the scaly epidermis with which their bodies are covered, and which they change annually. The third family comprehends the serpents which are naked.

The whole tribe are provided with conical and curved teeth, more calculated for securing their prey than for the mastication of their food. Some of the genera have pervious fangs in the upper jaw, which, pressing on a gland, forces the included poison into the wounds they inflict.

The serpents on the Coromandel coast are of various kinds. Dr Russel, in his *History of Indian Serpents*, describes forty-three species, and gives an anatomical account of the apparatus for instilling the poison, &c. The poisonous serpents are distinguished from the rest by their fangs or canine teeth, and by

possessing two rows of small teeth in the upper jaw ; whereas the innoxious kinds are destitute of the former, and have three rows of small teeth or holders. Of the forty-three described by Dr R., not more than seven are furnished with poisonous organs ; nor does the venom of any appear to be nearly so active as that of the rattlesnake. The artificial insertion of poison is much less dangerous, than when the wound is inflicted by the serpent itself. The most celebrated remedy in India, for the bite of a serpent, is the Tanjore pill. The principal active ingredient is white arsenic, of which each pill of six grains contains about three-fourths of a grain ; but Dr R. found the action of the medicine was so very equivocal, as to destroy all confidence in it ;—the same may be said of the actual cautery, and of alkaline and acid caustics. In some cases the Tanjore pill, Madeira wine, and Eau de luce, have been administered separately, or united with seemingly good effect. Venomous serpents, when made to bite each other, produce no further effect than that of a simple incision. Mr Edwards, in his History of Jamaica, says, “It is singular, but true, that all the serpents in the West Indies are not venomous, while those that lie under the equator are mortal.”

Sir Thomas Brisbane Macdougall mentions, that the rapidity of the effects of the poison of some of the New Holland snakes is very extraordinary. One which he kept at home bit two of his pointers, one of which died in three minutes, and the other in about thirty minutes. Sir Thomas observes that the poison of these reptiles can be compared in its effects only to the prussic acid.

The following curious circumstance is stated in the New South Wales Gazette to have lately occurred there :—The servant of a gentleman in the interior, while at his labour on the estate, was unfortunately bitten in one of the fingers by a snake. Having a knife, or an ax at hand, without hesitation he lopped off the infected joint, and went home to his master who dressed the wound. No alarming symptoms followed, and there the affair apparently ended. In the course of two or three days, however, the poor man indulged his curiosity by visiting the stump on which he had left the amputated joint. He took it up, examined, and placed it to his nostrils ; upon which he was immediately seized with delirium, and very soon after died.

On proceeding in company with a friend, (says an American Traveller,) along the bank of the Hudson river, our attention was arrested by a number of small birds of different species, flying across the road and back again, and wheeling in manifold gyrations, and much chirping, yet making no progress from the particular place over which they fluttered. We were not left long in doubt as to the cause, when we observed a black snake, of considerable size, partly coiled, and partly erect from the ground, with the appearance of great animation, his eyes brilliant, and his tongue rapidly and incessantly brandished from side to side. This reptile was evidently the cause of the wild motions of the birds, for they ceased their evolutions as soon as the snake, alarmed by the approach of the carriage, retired into the bushes. The birds however alighted on the neighbouring branches, probably awaiting the re-appearance of their enemy. Our engagements did not permit us to wait to see the issue of this; but it was, in all probability, similar to that before described by Mr Nash—the destruction of some of the birds.

Mr Howison, in his "Sketches of Upper Canada," gives some curious particulars of the perfume and fascination of these reptiles. He says, "In Upper Canada, it is almost universally believed that snakes possess the power of fascination, which has so often been denied them by naturalists. Many people have had the fact demonstrated to them by being witnesses of it, and this was the case with me. One summer day, when strolling through the woods, I came to the edge of a small pond of water, on the surface of which floated a frog in a state of motionless repose, as if basking in the sun. I carelessly touched his back with a stick, but contrary to my expectation, he did not move; and on viewing him more closely, I perceived that he gasped in a convulsive manner, and was affected with a tremour in his hind-legs. I soon discovered a black snake coiled up, lying near the edge of the pond, and holding the frog in thralldom by the magic of his eyes. Whenever he moved his head to one side or the other, his destined victim followed it, as if under the influence of magnetic attraction; sometimes, however, recoiling feebly, but soon springing forward again, as if it felt 'a strong desire with loathing mixed!' The snake lay with his mouth half open, and never for a moment allowed his eyes to wander from his prey, otherwise the charm would have

been instantaneously dissolved. But I determined to effect this, and threw a large chip of wood. It fell between the two animals—the snake started back, while the frog darted under water, and concealed itself among the mud.”

A Pennsylvanian paper, called “The Reading Eagle,” for 1820, gives the following singular incident. Mr Daniel Strohecker, near Orwigsburgh, Berks, Pennsylvania, had a daughter three years of age, who, for a number of successive days was remarked to leave home with a piece of bread in her hand, and go to a considerable distance. The mother’s attention was attracted by the circumstance, who desired Mr Strohecker to follow the infant, and observe what she did with it. On coming up to her, he found she was busy feeding several snakes, called bastard-rattlesnakes. He immediately took the infant away, and proceeded to his house for his gun, and on returning killed two of them at a shot, and another a few days afterwards. The child called these reptiles, in the same manner as chickens are called; and when her father told her she would certainly be bitten by them if she attempted it again, she innocently replied, “No, father, they won’t bite me; they only eat the bread I give them.”

In America, music is well known to have great power over rattlesnakes, and to produce a kind of intoxicating effect; as during the time a tune is played on an instrument, they will lie as if dead.

In Hindostan, a species of dancing snakes are carried about in baskets through the streets of cities; and the possessors procure a livelihood by exhibiting them. These men play simple tunes on the flute, which appears so much to delight the snakes, that they keep moving their heads to the cadence, with a graceful motion, erecting about half the length of their body from the ground, and also following the music with gentle curves, like the undulations of a swan’s neck. Forbes, in his “Oriental Memoirs,” says, “It is a well attested fact, that when a house is infested with these snakes, and some other of the coluber genus which destroys poultry and small domestic animals, as also by the larger serpents of the boa tribe, the musicians are sent for, who, by playing on a flageolet, find out their hiding places, and charm them to destruction: for no sooner do the snakes hear the music, than they come softly from their retreat, and are easily taken.”

The attachments formed by animals from living together, have produced several remarkable facts. Feeling has been evinced by those reckoned most insensible, and even the strongest laws of nature have been set aside. The cobra di capello and the canary bird, who for several years inhabited the same cage at Mr Cross's, Exeter Change, were strong instances of the latter. They lived in perfect harmony, the canary frequently descending to the bottom of the cage and pecking around the snake, who never attempted to touch it.

Dr Mitchell of New York has recorded the curious fact of three double-headed serpents being found among a brood of young ones amounting to one hundred and twenty. Aristotle, Ælian, Aldrovandus, Licetus, Lanzoni, and many other authors, mention instances of serpents with double heads, so that it may be considered as a kind of structure not very uncommon in this tribe of animals. Redi, the celebrated anatomist, kept a two-headed snake for a considerable time, and afterwards dissected it. He found that it had two hearts, two tracheas, and two lungs: the two stomachs united into a common alimentary canal; and the liver and gall bladder were double. He further remarks, that the one head died seven hours later than the other. Very lately, Dr Corradori at Ruta in Tuscany, informs us, that he saw a snake with two heads; and adds, it sometimes happened that the heads differed as to the use of their faculties; thus the one head would eat while the other was asleep.

Pontoppidan describes a monstrous sea snake, said to appear occasionally on the coast of Norway; and relations of a similar description are to be met with in the writings of other authors. In the year 1806, the remains of a remarkable animal, answering in some degree to the description of Pontoppidan, was cast ashore on one of the Orkney Islands, and has been described by the late Dr Barklay in the first volume of the *Wernerian Memoirs*. There is also in the memoirs, an interesting notice of an animal supposed to be of this tribe, by the Rev. Mr Maclean of Small Isles, which was observed near the Island of Eigg, one of the Hebrides; and we have the following observations in the second volume of Kotzebue's voyage, of a sea monster said to resemble a serpent. "M. Kriukoff's description of a sea animal that pursued him in at Beering's Island,

where he had gone for the purpose of hunting, is very remarkable : several Aleutians affirm they have often seen this animal. It is of the shape of the red serpent, and is immensely long ; the head resembles that of a sea-lion, and two disproportionately large eyes, give it a frightful appearance. It was fortunate for us, says M. Kriukoff, that we were so near the land, or else the monster might have destroyed us : it stretched its head far above the water, looked about for its prey, and vanished. The head soon appeared again, and that considerably nearer : we rowed with all our might, and were very happy to have reached the shore in safety. If a sea-serpent has been really seen on the coast of North America, it may have been one of this frightful species."

Sea snakes are very frequent in the torrid zones and off the coasts of India, at the distance of twenty or thirty leagues from land ; they are never seen alive on earth, but are frequently cast by surges dead on the shore. M. D'Obsonville says, they are from three to four feet long, and reputed to be very venomous. M. Bougonville informs us of a sailor, who, on hauling a seine on the coast of New Ireland, was bit by one, and instantly affected with most violent pains all over his body ; but at last, by the assistance of Venice treacle with flower de luce water, he fell into a great perspiration, and was quite cured.

THE ADDER.

We are told by Mr Murray, in the "Magazine of Natural History," that a curious instance was communicated to him of an adder having seized the artificial fly of an individual who was fishing in one of the lakes of Scotland, on the verge of the estuary of a river. The adder was finally drowned, by being dragged into the current against the stream.

The Rev. Mr White says, " On the 4th of August 1775, we surprised a large viper, which seemed very heavy and bloated, as it lay in the grass, basking in the sun. When we came to cut it up, we found that the abdomen was crowded with young, fifteen in number ; the shortest of which measured full seven inches, and were about the size of common earth-worms. This

little fry issued into the world with the true viper spirit about them, showing great alertness as soon as disengaged from the belly of the dam : they twisted and wriggled about, and set themselves up, and gaped very wide, when touched with a stick, showing manifest tokens of menace and defiance, though as yet they had no manner of fangs that we could find, even with the help of our glasses.

“ To a thinking mind, nothing is more wonderful than that early instinct which impresses young animals with the notion of the situation of their natural weapons, and of using them properly in their own defence, even before those weapons subsist or are formed. Thus a young cock will spur at his adversary before his spurs are grown ; and a calf or lamb will push with their heads before their horns are sprouted. In the same manner did these young adders attempt to bite before their fangs were in being. The dam, however, was furnished with very formidable ones, which we lifted up, (for they fold down when not used,) and cut them off with the point of our scissors.

There was little room to suppose that this brood had ever been in the open air before, and that they were taken in for refuge, at the mouth of the dam, when she perceived that danger was approaching ; because then, probably, we should have found them elsewhere, in the neck, and not in the abdomen.”

An adder with two distinct heads, which lived three days, taken with five others from the body of an old one, found in a ditch at Drumlarig, Dumfriesshire, is now in the museum of Mr Thomas Grierson, Baitford, near Thornhill.

THE RATTLESNAKE.

M. Nalos, a Frenchman, while in North Carolina, attempted to procure some rattlesnakes for the purpose of making up a collection. But some of the observations and experiments he made, induced him to believe in the possibility of taming this poisonous reptile. He made a trial, and completely succeeded. By what process he performed this was not known. He probably availed himself of the power which a control over the appetite of the animal gave him ; he spoke much himself of the

charms of music ; while influenced by hunger, and irritated by the application of hot iron, the creatures were soothed by a slow and plaintive strain.

Two rattlesnakes were in the possession of M. Nalos. The male was four feet eight inches long, and had eight rattles to his tail, thus proving him to have been nine years old. This snake had been in his possession for four years. The female was much smaller, had five rattles only, and had been in his possession for two years and nine months. So great was their docility, that he would take them up, after speaking some idle jargon to them, and stroking down their backs, as if they were ropes, he would make them crawl upon his breast and face, caress and kiss him, coil round his neck, and while one of them was thus hanging round him, he would take up the other and exhibit it. The perfect harmlessness of the reptiles, and even their attachment to their keeper, was really astonishing.

Mr Howison says, " It is asserted by some, that snakes occasionally exert their power of fascination upon human beings, and I see no reason to doubt the truth of this. An old Dutch woman, who lives at the Twelve Mile Creeks in the Niagara district, sometimes gives a minute account of the manner in which she was charmed by a serpent ; and a farmer told me, that a similar circumstance occurred to his daughter. It was on a warm summer day that she was sent to spread out wet clothes upon some shrubbery near the house. Her mother conceived that she remained longer than was necessary, and seeing her standing unoccupied at some distance, she called to her several times, but no answer was returned. On approaching, she found her daughter pale, motionless, and fixed in an erect posture. The perspiration rolled down her brow, and her hands were clenched convulsively. A large rattlesnake lay on a log opposite the girl, waving his head from side to side, and kept his eyes stedfastly fastened upon her. The mother instantly struck the snake with a stick, and the moment he made off the girl recovered herself and burst into tears, but was for some time so weak and agitated that she could not walk home."

Dr Barton of Pennsylvania has published a memoir on the fascination of the rattlesnake, in which he explodes the singular power attributed to this reptile. Some have said the idea took its rise among the Indians, (though this is doubted,) for at pre-

sent they are not satisfied on this head. The opinion, therefore, is not universal among them. The Southern Indians of America hold this snake in high veneration, and even the Delaware Indians had the same notion. Some say that the appearance of fascination is entirely limited to birds that build low, and that the cries of these little creatures to preserve their young is natural, and not owing to the fascination of the snake. The rattlesnake too is not like the black snake, which climbs the trees. When these species begin to glide up the branches, the parent bird is actuated by her instinctive attachment to her young, and exposes herself to danger to preserve them, and has been known to compel the serpent to leave the tree. When the nestlings first begin to fly, they are not wholly left without the parent's care. In these first attempts they sometimes fall, and then, if the snake is on the ground, they are seized ; in this situation, the old bird will dart upon the serpent. Mr Bittenhouse made this observation. He saw the Swamp-blackbird perched on the back of a large black snake, and pecking it with his bill, at the very time the serpent was in the act of swallowing a young bird. After the snake was killed, the old bird flew away. He says, the cry and actions of the bird were similar to those which are said to be under the power of fascination. The black snake will attack the nest of a Baltimore bird. These are hanging nests at the extremity of a branch. One of these species of reptiles has been seen to hang above the nest, and by twisting its tail round one part of the tree, to dart its stretched out head into the nest, and so glut its appetite on the young nestlings. When the female bird attacks the snake while it is feeding on the young ones, it is safe, but when it has done, the old one often falls a victim to its fury.

Mr Thomas Blair says, " In Canada I heard many wonderful stories of snakes charming their prey, particularly birds ; but I confess I am myself somewhat sceptical on this head. The following, which exactly agreed with my own opinion on the subject, was related to me by a very respectable farmer, who had previously been a true believer in their fascinating qualities. He was walking in a field near his house, when he perceived a bird fluttering above the stump of a tree, uttering an uncommon cry, and by degrees getting near to the ground. The farmer's attention being drawn by the uncommon cries and motions of

the bird, he walked slowly towards it, but it seemed to take no notice of him, and continued still getting closer to the ground. The farmer at last observed that the bird's attention was directed towards a large snake, resting against a stump nearly erect, with its head close to a small hole. The bird (probably encouraged by the presence of the farmer) struck at the snake with his wings, which caused him immediately to drop. On examination, it was found that the bird's nest was within the tree with five unfledged young ones, which the snake had been exerting his ingenuity to procure a part of for his dinner."

Mr Pierce had a living rattlesnake in his possession for two months, and every day watched his manners. He immediately killed birds and most small animals, when put into his cage, but did not eat them. He permitted a toad, however, to remain weeks with him unmolested, and allowed it to leap upon his body, and sit upon his head. When he opened his mouth, his fangs were not visible unless he was provoked; at other times, they were covered with a membrane like a scabbard, only they were drawn back, so that the sheathing membrane formed only a slight protuberance on each side of the upper jaw. If irritated, he flattened his head, threw it back, opened his mouth wide, and instantly the fatal fangs were shot out of their sheaths like a spring dagger, and he darted upon his object. "After his death," says Mr Pierce, "I examined the fangs; they are sharp like a sickle; a duct led from the reservoir of poison at the bottom of the tooth quite through its whole length, and terminated just by the point, which was exceedingly sharp. Thus, the fang is darted out at the will of the animal, it makes the puncture at the instant, and simultaneously the poison flows through the duct, and is deposited in the very bottom of the wound. As this rarely fails to touch a blood-vessel, the venom is thus instantly issued into the system, and without delay, commences the march of death through every vein and artery."

The same author gives, in the *American Journal of Science*, the following interesting particulars of the rattlesnake. A young man having met with a large and voracious rattlesnake, instead of killing it with his large cart-whip, as he could easily have done, amused himself by provoking it, and gently plying his whip round its body. The irritated reptile made repeated and vigorous leaps towards the young man,

coming nearer to him at every effort ; and being teased more and more with the whip, at last threw himself into the air with such energy, that when he descended he seemed scarcely to touch the ground, but instantly rebounding, executed a succession of leaps so rapid, and so great, that there was not the slightest intermission, and he appeared to fly. The young man betook himself to rapid flight, but this dreadful pursuer gained rapidly upon him, till approaching a fence, he perceived he could not pass it before the fangs of the snake would be hooked in his flesh. As his only resource he turned, and by a fortunate throw of his lash, by which he wound it round the snake's body, he arrested his progress and killed him.

THE BOA CONSTRICTOR.

THE following interesting notices of the Great Boa, are from Abel's journey in China :—" Captain Ross, while in his ship off the island of Celebes, was visited by a canoe from the shore, containing two Malays and the mangled body of a man, the bones of which were mostly broken ; the arms especially being dreadfully crushed. The eyes appeared to be starting from the head, in consequence of its having been dreadfully compressed. On inquiring the cause of these appearances, the Malays informed Captain Ross, that having landed to fish along shore, they had left the canoe in charge of the poor man whose body he now saw ; that they had told him to be on his guard against the large snakes which are often seen on the skirts of the wood near the sea ; but they had not left him long before they were alarmed by his cries, and on hastening to his assistance, found him enveloped in the folds of a large serpent ; that he was dead before they could destroy the snake, which did not quit its hold on their approach. They then produced the head of the snake, which Captain Ross examined. It was very small when considered in relation to the extraordinary power of the animal, and its capability of swallowing ; for it would doubtless have gorged the body of the man, unless prevented by the appearance of his companions. It did not measure more than eight inches in its

greatest diameter. The man had evidently been seized by one of the wrists, as it bore the impressions of the snake's teeth.

"That the size of the head of a snake bears no proportion to the magnitude of an animal which it is capable of swallowing, will be evident from an account that I shall now give of a specimen, whose head measured, in its greatest longitudinal diameter, five inches, and its greatest transverse diameter, four inches and a half. The internal widths between the two portions of the lower jaw, within which its prey must have passed to its stomach, was rather more than an inch and a half. This animal measured eighteen feet in length, and eighteen inches in its largest circumference.

"This snake, although permitted, when I saw him at Batavia, to leave his cage and go into an open space, was seldom disposed to avail himself of this liberty, and it was often necessary to drag him out, and to irritate him repeatedly, before he could be induced to move. He would then stretch himself to his greatest extent, and without throwing his body into any curve, glide so closely, slowly, and silently along the ground, and so exactly harmonized in colour with the soil over which he was passing, that unless watched, he might easily have been overlooked. Whilst at full length, he might be approached with safety, as he had not then the power of darting; but when he reared himself on his folds, and put his head into a vibratory motion, he had the greatest command of his powers, and exhibited the most threatening aspect. This attitude he usually assumed after he had been some time from his cage, and all who were near him involuntarily drew back. A live duck being brought to him, he felt it for a moment with his forked tongue, and then seizing it by the breast, endeavoured to wend its folds about his body, which being too small to suffer from their compression, he threw the weight of one of its folds upon its neck and strangled it. When it was dead, he gradually withdrew himself, and taking its head foremost into his mouth, sucked it down his throat. But a duck was only a mouthful to him, a goat being his usual meal. On board the *Cæsar* he swallowed two which were given him in his cage, at the interval of a month from each other. As soon as the goat was within his reach, he raised his head above his coils, and having contemplated his prey a few seconds, felt it with his tongue. The goat did not appear to be much

alarmed, as he examined the snake closely, smelling him over with great deliberation. The snake having withdrawn his head a short distance, made a sudden dart at the throat of the goat, which received him on its horns, and obliged him for an instant to retreat. He then made a second dart, and seizing the goat by the leg, pulled it violently down, and wound his folds with momentary rapidity about his body, squeezing at the same time with all the force he could bring to bear. But even in this instance, the animal was too small to suffer their whole compressing effects, and he was obliged to destroy the goat much in the same manner as he had the duck, by throwing the weight of his body on its neck. The goat was eight minutes dying, but was so entirely overwhelmed by the power of the snake, that it could not even struggle.

“The snake did not attempt to change his posture for some minutes after the goat was dead. At length, however, he gradually slackened his folds, and then disengaged them, one by one, with great caution and slowness, as if to ascertain whether the goat retained any power of motion, and having disentangled himself, prepared to swallow it by placing himself opposite its head, and feeling it with his mouth. While doing this, saliva flowed abundantly over his jaws, but he made no attempt to besmear his prey. In a few minutes he took its nose into his mouth and endeavoured to draw the head after it, but this appeared to be no easy task. The dilatation of his throat seemed to begin with difficulty, as he was at least one-third of the time consumed in gorging the goat, in getting down the head and horns. These diverged at a considerable angle, and were four inches in length. Having conquered them, he grappled with the shoulders, which he was some time in mastering, but readily overcame the rest of the body. In drawing the goat into his swallow, he appeared to work himself into it, opening his mouth as wide as possible and forcing it onwards. Whatever progress he thus made was preserved by strong recurved teeth, which permitted the animal to pass down his throat, but prevented its regurgitation without his will. The act of swallowing was also much aided, I suspect, by the pressure of the air on the goat's body, as a deep inspiration accompanied every successive attempt to draw it down his throat. He was two hours and five minutes in gorging the whole animal.

“The appearance of the snake when in the act of swallowing the shoulders of the goat was very hideous. He seemed to suffer strangulation. His cheeks immensely dilated, appeared to be bursting, and his windpipe projected three inches beyond his jaws. The horns of the goat, which had advanced only a few inches down his swallow, protruded so much, that I expected them every moment to penetrate through the intervening membrane of the scales, which they separated from each other. After the goat was down he scarcely moved from the posture he was in during his last act of deglutition, but fell into a semi-torpid state, from which no irritation could rouse him for several days. At this time he measured three feet in his greatest circumference, having doubled his ordinary diameter. The goat's body underwent no visible diminution of bulk or consistence from the snake's folds, but seemed to pass down his throat in an entire state.”

Captain Heyland, who was the former possessor of this snake, gave the following description of it:—“The animal was brought to me early in January, and did not from that time taste food till the July following. During this period he generally drank a quart of water daily. The man who brought him stated, that he had been seen to eat a hog-deer the day before he had been taken. He was allowed to be at liberty in the grounds about my house. One evening early in July, hearing a noise, I went out, and discovered that the snake had left his harbour, under the boards of a stable where he generally lay; and having entered a small shed in which some fowls were roosted, contrived to sweep eleven from the perch, which he afterwards destroyed by pressing them between his folds. Then taking them one by one, head foremost into his mouth, swallowed the whole down in twenty minutes. The largest animal that he ate while in my possession was a calf, which he killed and gorged in two hours and twenty minutes. He never attacked dogs, cats, or pigs. Of these last, indeed, he seemed to be in dread, for, whenever one was presented to him, he retired to a corner, and coiled himself up, with his head undermost. If fed with animals not larger than a duck, he ate readily every day; but after the meal of a goat, refused food for a month.”

Mr Abel says, “In the different accounts given by authors of the destruction of large animals by serpents, much discrepancy

of statement exists respecting the breaking of their bones. Whilst some have declared, that their cracking has been heard at a considerable distance, others have produced instances of the bodies of large animals in which no 'ossifraction' had taken place, having been found in the stomachs of serpents. The bones of the animals swallowed by Captain Heyland's snake, were not fractured as far as 'a looker-on could discover,' and although many bye-standers conceived that they heard the breaking of the bones of the goat which he swallowed on board the *Cæsar*, I am disposed to attribute much to the force of imagination. I listened attentively, and heard only the snapping of his scales as they slipped over each other during his manifold movements."

Some years ago a most singular circumstance occurred on the Island of St Vincent, in the Charaib country. Some negroes who were working near Sandy Bay, discovered an immense serpent, hitherto wholly unknown as existing in any of these islands; and which, after attacking the man by whom it was first discovered, and alarming several others who had gone in search of it, was finally killed by one of the party, who shot it through the head with a musket which he had charged with three bullets. This animal turned out to be the Boa, so common in the neighbouring continent, and measured thirteen feet from the head to where a kind of tail appeared, which was between fourteen and fifteen inches; the circumference of the body was nearly three feet. When first discovered it lay in a kind of coil, but on being roused raised its body erect. How the animal came there is not easy to imagine, unless it swam thither from the main land. Serpents are known to be expert swimmers.

Park, in his Letters, says, "Once when lying in the river and hearing an unusual noise overhead, I hastened upon deck. The natives, of whom a number were on board, were calling out *Bomma! Bomma!* Those on shore were running from the landing-place in the greatest terror. The cause of this alarm explained itself. A large snake was floating close past the vessel. It was a boa constrictor. I immediately manned the yawl, and went in pursuit, foolishly thinking, that if I could but fix a harpoon into it, the force of the current would prevent it boarding the boat. Imagining it to be asleep, I approached slowly, to

have an opportunity of striking it to the best advantage, but soon discovered that it was dead. I hooked it with the harpoon and drew it alongside; but when on deck, the stench was so intolerable, that we were obliged to throw it overboard. It was quite flaccid; and, although the entrails were out, the diameter of the body in that state was nine inches. The extremities had been cut off, and only fourteen feet of the trunk left, but as this part tapered nothing at either end, we may reasonably conclude, that the whole body was at least three times that length. Here then is a snake fifty feet long, and almost a foot in diameter! Its probable dimensions need not surprise us,—there are so many well-authenticated accounts of the enormous size to which these reptiles attain. The natives spoke of this as a very small one. The skin was a quarter of an inch thick, and had beneath it a deep layer of fat. It was covered with large serrated black and dusky-coloured spots across the back. The belly was white. The autumnal conflagrations frequently prove destructive to the boa constrictor, especially when gorged with its prey; and it is only then that the natives dare attack it with any hope of success. At other times it will make a whole village fly before it. Its name in the Loango tongue is Bomma, whence Embomma.”

A correspondent of Sir David Brewster's from Assam, says, “I have now (6th July, 1825,) hatched a brood of young boas from the eggs, which I have already mentioned to you as having been got at Bishnath. There are twenty-eight of them here, (at Gowahatty;) and about twenty more at the snake-catcher's house. They are about 18 inches in length, and sufficiently lively; but I fear it will be very troublesome to bring them up, as they require to be *crammed* with fish or other food; an operation which no one but a snake-catcher, who has got over the vulgar prejudices against being bitten by such snakes as they are, would like to perform. There are also here some very fine hooded snakes, resembling the Cobra di Capello, but longer than any of that species that I have before met with, being ten or twelve feet in length.

“It is here considered to be a very uncommon thing to find the eggs of the boa, as none of the snake-catchers have ever seen them before. They were soft, and indented by pressing against each other. Their size is about that of a goose's egg, and they

resembled in appearance the Fungi, called stools. At the end there was a sort of tag, as if the egg had been attached to something. On the fourteenth day after birth they cast their first skins. They increase considerably in size, but the snake-catchers are of opinion, that they will take many years to acquire their full growth."

The author of that beautiful work, "the Tower Menagerie," says, "Happily the appetite of these gigantic snakes bears no proportion to their means of gratifying it, as a full meal is uniformly succeeded by a state of torpor, which frequently lasts for a month or six weeks, or, during the cold season, even for a longer period. Those in the Tower which are kept in a state of artificial warmth, usually feed every five or six weeks, and a fowl or a rabbit usually suffices for a meal.

"These are held by the keeper within view of the serpent, to ascertain whether he is inclined to take his prey or not. About three years ago, (1826,) Mr Cops, while thus engaged in offering a fowl to one of the boas, had nearly met with a serious accident; the snake, which was almost blind from the approaching change of its skin, missing the fowl, and seizing upon the keeper's thumb instead, around which and its own head it instantaneously threw two coils, and then, as if surprised at the unexpected resistance, cast an additional fold round the neck, and fixed itself by its tail to one of the posts of its cage, in such a manner as nearly to throttle him. His own exertions, however, aided by those of the under keepers, at length disengaged him from his perilous situation; but so determined was the attack of the snake, that it could not be compelled to relinquish its hold until two of its teeth had been broken off and left in the thumb."

THE BLACK SNAKE.

It is said that the speed of the black snake is so great, that it sometimes equals a horse. These snakes are very amusing, in the various evolutions which they perform. They sometimes climb trees in quest of tree-frogs; or glide along the ground in search of other prey. Sometimes they assume a half erect

posture, on which occasions their head appears to great advantage; and their eyes assuming a fiery brightness, enables them to fascinate birds, and the smaller quadrupeds, in the same manner with the rattle-snake.

The black snake is a bold animal, and will even attack a man, but an active defence with a stick may generally drive it off. If a person runs from this snake it is sure to pursue, and will generally overtake the individual, and twist itself round his legs in such a manner as to throw him down. It will then bite him several times in the legs, and afterwards escape.

From the letters of an American farmer the following interesting account of a battle between this and another species is extracted.

“ One of my constant walks when I am at leisure (says this writer,) is in my low lands, where I have the pleasure of seeing my cattle, horses, and colts. Exuberant grass replenishes all my fields, the best representative of our wealth. In the middle of that tract I have cut a ditch, eight feet wide. On each side of this I carefully sow every year some grains of hemp, the plants from which rise to the height of fifteen feet, so strong and full of limbs as to resemble young trees. These produce natural arbours, rendered still more compact by the assistance of an annual creeping plant which we call a vine, that never fails to entwine itself among the branches, and always produces a very desirable shade. As I was one day sitting, solitary and pensive, in this primitive arbour, my attention was engaged by a strange sort of rustling noise, at some paces distance. I looked all around without distinguishing any thing, until I climbed up one of my great hemp-stalks; when, to my astonishment, I beheld two snakes of considerable length, the one pursuing the other with great celerity through a hemp stubble field. The aggressor was of the black kind, six feet long; the fugitive was a water-snake, nearly of equal dimensions. They soon met, and in the fury of their first encounter, appeared in an instant firmly twisted together; and whilst their united tails beat the ground, they mutually tried with open jaws to lacerate each other. What a fell aspect did they present. Their heads were compressed to a very small size; their eyes flashed fire; and after this conflict had lasted about five minutes, the second found means to disengage itself from the first, and hurried towards the

ditch. Its antagonist instantly assumed a new posture, and half creeping, half erect, with a majestic mien, overtook and attacked the other again, which placed itself in a similar attitude, and prepared to resist. The scene was uncommon and beautiful, for thus opposed they fought with their jaws, biting each other with the utmost rage; but, notwithstanding this appearance of mutual courage and fury, the water-snake still seemed desirous of retreating towards the ditch, its natural element. This was no sooner perceived by the keen-eyed black one, than twisting its tail twice round a stalk of hemp and seizing its adversary by the throat, not by means of its jaws, but by twisting its own neck twice round that of the water-snake, he pulled it back from the ditch. To prevent a defeat, the latter took hold likewise of a stalk on the bank, and by the acquisition of that point of resistance, became a match for his fierce antagonist. Strange was this to behold; two great snakes strongly adhering to the ground, mutually fastened together by means of the writhings which lashed them to each other, and stretched at their full length, they pulled, but pulled in vain; and, in the moments of greatest exertion, that part of their bodies which was entwined seemed extremely small, while the rest appeared inflated, and now and then convulsed with strong undulations, rapidly following each other. Their eyes appeared to fire, and ready to start out of their heads. At one time the conflict seemed decided; the water-snake bent itself into great folds, and by that operation rendered the other more than commonly outstretched; the next minute the new struggles of the black one gained an unexpected superiority, it acquired two great folds likewise, which necessarily extended the body of its adversary, in proportion as it had contracted its own. Those efforts were alternate, victory seemed doubtful, inclining sometimes to one side, and sometimes to the other, until at last the stalk to which the black snake was fastened, suddenly gave way, and, in consequence of this accident, they both plunged into the ditch. The water did not extinguish their vindictive rage, for their agitations I could still trace, though I could not distinguish their attacks. They soon reappeared on the surface, twisted together as in their first outset; but the black snake seemed to retain its wonted superiority, for its head was exactly fixed above that of the other, which it incessantly pressed down under the water, until it was

stified and sunk. The victor no sooner perceived its enemy incapable of farther resistance, than abandoning it to the current, it returned to the shore and disappeared."

In the Scots Magazine for 1768, we find the following highly interesting, though perhaps somewhat overcharged account of an ANACONDA, or species of boa constrictor. The account is given in a letter from an English gentleman, many years resident in the island of Ceylon:—

"Some years since," says the writer, "the commands of my directors carrying me to Ceylon, to transact an affair of no little consequence, I had an apartment prepared me on the skirts of the principal town, facing the woods. At some distance from my window there was a rising ground, on which stood three or four very large palm-trees, that afforded me every morning, as I lay in bed, a delightful prospect. One morning as I was looking at these, I saw, as I thought, a large arm of one of them in strange commotions, bending and twisting about, though there was no wind, and often striking one end to the earth, then raising it again, and losing it among the leaves. I was gazing at this with great amazement, when a Ceylonese coming in, I begged him to look and wonder with me. He looked, and he was much more amazed and terrified than I; in short, a paleness overspread his whole face, and he seemed almost sinking to the earth with terror. He conjured me to bar up all my doors; then told me, that what appeared an arm of the tree to me, was in reality a serpent of that monstrous size, diverting itself there with its various commotions, and now and then darting down to the earth for prey. I soon found out the truth of what he told me; and looking more nearly, saw it seize a small animal before me, and take it up into the tree. Inquiring after this miracle, the Ceylonese told me, that the wonder was, only that the creature was so near us, for it was a serpent but too well known in the island; but that it usually kept in the inland parts and woods, where it often dropped down from the covert of a large tree, and devoured a traveller alive. A relation so strange as this could never have gained credit with me, but that I plainly saw before my eyes a creature from its size capable of doing more than was related.

"The monster continued diverting itself, till we assembled a body of twelve of us to go on horseback, well armed to destroy

him. We rode up toward the place in a body; but not to expose ourselves to unnecessary dangers, we surrounded the ground, and rode behind a close thicket, from whence we might unseen level our fire-arms at him. It was by this time the heat of the day, and when we arrived there, we found him so much larger than we had conceived, that we all wished ourselves safe at home again; and it was a long time before any body dared fire a gun. We had now time to observe the creature; and, believe me, all the descriptions of monsters of this kind hitherto given, are trifles to the truth of what we saw in him. The Ceylonese all agreed he was much larger than any they had ever seen; and such a mixture of horror and beauty together, no eye but that which saw it can conceive. The creature was more than as thick as a slender man's waist, yet seemed far from fat, and very long in proportion to its thickness, often hanging himself by the tail from the highest boughs of the tree. He was most surprisingly agile and nimble, and was now diverting himself in the heat of the day, with a thousand gambols round the branches of the tree, and sometimes would come down, and twist his tail round the bottom of the trunk, throwing himself to his whole length all round it.

"In the midst of one of these gambols, we were surprised to see him get up in haste to the tree; but the cause soon appeared; a small animal of the fox kind, but not like our English foxes, coming immediately after; the serpent had seen him coming, and took this way to be prepared for him. He darted down upon the unwary creature from the tree, and sucked him in a few minutes, then licked his chops with a broad double tongue of a blackish colour, and laid himself at his ease at length upon the ground, but with his tail still twisted round the tree.

"In this posture I had leisure, with horror, yet with admiration, to behold him. He was covered all over with scales like those of a crocodile, all ridged up in the middle; his head was green, with a vast black spot in the middle; and yellow streaks round the jaws; he had a yellow circle like a golden collar round his neck, and behind that another great spot of black. His sides were of a dusky olive colour, and his back more beautiful than can be well imagined: there ran down the middle of it, a broad chain of black, curled and waved at the edge; round this there ran all the way a narrow one of flesh colour, and on the outside

of that, a very broad one of a bright yellow, not strait like a ribbon, but waved and curled in various inflections, and spotted all over at small distances with great round and long blotches of a perfect blood colour; his head was very flat, but extremely broad; and his eyes monstrously large, and very bright and terrible. These were his colours as he lay still; but when he moved about in the sun, he was a thousand times more beautiful, the colours, according to the several shades of light, presenting the eye with a vast variety of mixtures, and in many places looking like our changeable colours in silks.

“We now all aimed our pieces at him as he lay, and fired at his head all at the same instant; but whether he accidentally moved just at that time, or our fears made us take bad sight, or whatever else might be the cause, we either missed him, or never hurt him. In short, he took no notice of it; and, after a council of war, we all agreed to make no further attempt upon him at that time, but to go home, and return with a stronger party the next day.

“The Ceylonese seemed to know the creature well; they call it ANACONDA, and talked of eating its flesh when they caught it, as they had no small hopes of this; for, they say, when one of these creatures chooses a tree for his dwelling, he seldom quits it for a long time. I detained my company of Ceylonese to dine with me, and the afternoon was spent in relating the amazing things which one or other of the company had seen of this sort of monsters; in short, they told a thousand things that far outwent my credulity; but I am to inform you, that what we saw the following day, as much exceeded all they had told me, as what they told seemed to exceed truth and probability.

“It seems, the constant custom of this creature is, to lay wait for its prey, by hiding in the boughs of large trees, whence it unsuspectedly drops upon the wretched creature, which is seized before it sees its enemy.—But the instance we saw of this, I must relate to you at large.

“The next morning, we assembled to the number of more than a hundred at the old thicket, where we had the pleasure, if I dare call it so, to find our enemy still at his old post. He seemed very fierce, and very hungry this morning, and we soon saw the amazing effects of it. There are great plenty of tigers, you must know, in this country: one of these, of a monstrous

size, not lower than a common heifer, as he went along, came at length under our serpent's tree. In a moment we heard a dreadful rustling in the tree, and, swift as thought, the serpent dropped upon him, seizing him across the back, a little below the shoulders, with his horrible mouth, and taking in a piece of the back bigger than a man's head. The creature roared with agony, and, to our unspeakable terror, was running with his enemy towards us. His course, however, was soon stopped; for the nimble adversary, winding his body three or four times round the body of his prey, girt him so violently, that he fell down in agony. The moment the serpent had fixed his folds, he let go the back of the creature, and raising and twining round his head, opened its horrid mouth to its full extent, and seized the whole face of the tiger in it, biting and grinding him in a most horrid manner, and at once choking him and tearing him to pieces. The tiger reared up again on this, and words are too poor to paint his seeming agony: he writhed and tossed about, but all in vain; the enemy, wherever he went, was with him; and his hollow roaring from within the destroyer's mouth was dreadful beyond expression. I was for firing upon the creature in this state, but they all declared against it: they told me, they knew his customs so well, that they were now very sure of him without any trouble or hazard, if they let him alone; but that if they disturbed him in this condition, he would be so outrageous, that several of our lives would assuredly pay the forfeit. They seemed to know so well what they were about, that I readily acquiesced. Several of us spent the whole day in observing this strange sight; and surely the agonies of the tiger were beyond all that can be conceived, and his death more horrid than a thousand other deaths, with all their tortures put together. The tiger was a very strong and fierce creature, and, though unable to hurt or get rid of its cruel enemy, yet gave him a world of trouble: a hundred times would he rear up, and run a little way, but soon fell down again, partly oppressed by the weight, and partly by the folds and wreathed twists of the serpent round his body: but though he fell, he was far from being conquered, or at all manageable. After some hours, he seemed much spent, and lay as if dead; and the serpent, who had many times violently girted himself round him, attempting to break his bones, but in vain, now let go his hold; twisting his tail only round the tiger's neck,

who was now in no condition either to resist or escape, he made towards the tree, dragging, with some pains, the victim after him. Now appeared the double use of the tree to the creature. Nature, it seems, informs this animal, that though it can conquer such large creatures as these, it can by no means devour them as they are, since their bodies are too thick for his swallow, and he must therefore break their bones, and reduce them to a soft mass, before he can manage them. This he usually does, as we saw him attempt it on the tiger, by girding his body very firmly and hard round them, by this means crushing them to pieces; but when this method will not take place, he has recourse to the tree, as we now had opportunity to observe. He dragged the tiger, by degrees, after him to the tree; and the creature being now almost dead, and unable to stand, he seized him lightly a second time by the back, and set him on his legs against the trunk of the tree; then immediately winding his body round both the tiger and the tree several times, he girted both with all his violence, till the ribs and other bones began to give way; and, by repeated attempts of this kind, he broke all the ribs almost one by one, this creature's bones being prodigiously tough, and each giving a loud crack when it burst. When he had managed all the ribs thus, he next attempted the legs, and broke them severally in the same manner, and each in four or five different places. This took up many hours, and the poor creature all this while was living, and, at every loud crack of the bones, gave a howl, though not loud, yet piteous enough to pierce the cruelest heart, and make even man forget his natural hatred to its species, and pity its misery. After the legs, the snake attacked the skull in the same manner; but this proved so difficult a task, that the monster, tired with his fatigue, and seeing his prey in no condition of escaping, left him for the night at the foot of the tree, and retired into it himself to rest.

“ This gave us occasion of going home: and I must assure you, I could not sleep for the poor tiger, who was naturally so strong and vigorous, that we left him still alive, though broken and mangled in this miserable manner.

“ In the morning I returned with several others to the thicket; but as we rode up we saw a strange change in the face of things; the body of the tiger, which was now no longer to be known as such, but looked like a red lump of shapeless matter, was drag-

ged to some distance from the tree, and shone all over as if covered with glue or jelly. When we arrived, we saw very plainly the meaning of all this, for the snake was yet busied about it. He had laid its legs one by one close to the body, and was now placing the head straight before, and licking the body, (which now had no remaining shape of one, its bones being all broken,) and covering it with its slaver, which was what gave it that shining look, coating it over like a jelly, and rendering it fit for swallowing. A great deal of time was employed in this, but at length the serpent, having prepared it to his mind, drew himself up before it, and seized the head, just as the rattle-snakes by some accounts do a rat, and began to suck that, and afterwards the body, down into his throat. This was the work of so much time, that I left him struggling at the shoulders when I went home to dinner, and by the accounts of those who staid to watch him, it was night before he got the whole in.

“The morning following we all assembled for the last time, and the very women and children followed, and assured us, that, as the prey was gorged, there was then no danger. I could by no means conceive the meaning of this, till I came to the place; but then I found it very true: the serpent had so loaded his belly, that he could neither fight nor run away. He attempted, on our approach, to climb the tree; but in vain; and was soon knocked on the head with clubs. We measured him, and his length was thirty-three feet four inches. He was soon cut up; and, I assure you, afforded a flesh whiter than veal, and, as they said that ate of it, finer tasted than any flesh whatever.”

ANECDOTES OF INSECTS.

It has long been observed, that those races of animals which live in societies, and unite their efforts for the attainment of one common end, exhibit a great superiority of intellectual faculties over those who lead a life of solitude and seclusion. The observation applies equally to the small, as to the larger animals; although among the insect tribes, the distinction is most strongly marked. The history of those that are solitary, as of the myrmelion, or the spider, is limited to a single generation, and is memorable only by the display of some particular talent or artifice in the mode of catching their prey, or procuring a sheltered habitation for themselves and their progeny. But the history of those gregarious insects, which live together in large swarms, composing, as it were, so many distinct republics, embraces considerations of much higher interest. The bond of society by which they are united, implies a community of wants, a sympathy of desires, and a mutual intelligence of designs, by which the sphere of their sagacity and industry is enlarged—a subordination of rank, and division of labour, are introduced—and which ultimately lead to enterprizes and exertions of stupendous magnitude.

Under the term *instinct*, which has often been mistaken for the name of a distinct and definite principle, have been included a number of facts relating to the actions of animals, which we are unable to explain by any of the known principles of voluntary action. Facts of this description are more abundantly met with among the insect tribes, than in any other part of the creation. This, probably, arises from the imperfect knowledge we possess of their history; and we may reasonably expect, that a more enlarged acquaintance with the habits and manners of this portion of the animal kingdom, will enable us to explain many of those actions, which are now said to be instinctive, upon some principle of known operation.

THE SPIDER.

In the commotions which took place in Holland, when the Stadtholder was reinstated by the arms of Prussia, M. Quatremère D'Isjonval, a Frenchman, was arrested and imprisoned at Utrecht, where he spent upwards of seven years, deprived of his liberty. To amuse himself during this long confinement, he courted the acquaintance of spiders, studied their constitution and temperament; and after a long series of accurate observation, he made the important discovery that they were the most weather-wise of all creatures. Their *presentiment* of approaching changes is incomparably more refined than the variations indicated by the best barometers and hygrometers. A weather-glass points out only the probable state of the weather for the next day; but with respect to a permanent or long continued state of the atmosphere, this instrument cannot be relied upon. Spiders, however, have not only an obvious sensation of the approaching changes of the weather, similar to that manifested by a barometer, but they also indicate, with the greatest exactness, the more remote changes for a considerable length of time; nay, they foretell with precision, for a period of ten days or a fortnight, those states of the atmosphere which are of a settled nature. Of this M. D'Isjonval was enabled, in the end to furnish a most striking proof.

On Wednesday, the 16th of January, 1795, the wind changed to the northward; on Thursday it began to freeze, and the frost increased to such a degree, that the French were enabled to enter Utrecht, and to release their imprisoned countryman, M. D'Isjonval; but on the 20th of January, an unexpected thaw threatened to frustrate the designs of the invaders, who had advanced with all their heavy artillery, accompanied by an army of one hundred thousand men, to pass the icy bridges, which nature had apparently constructed for facilitating their hostile operations. The French generals were filled with apprehension, and began to think of the necessity of retreating, when M. D'Isjonval having consulted his meteorological assistants—the spiders—went and told his countrymen, that they had no cause for the least alarm, for that in a day or two the frost would return with greater intensity than had been known in Holland for

ages. The prediction was fully verified. The very next day the frost recommenced with almost unequalled severity; and Holland, no longer able to avail itself of its pent-up floods, become an easy conquest to the revolutionizing republicans.

The manner in which spiders carry on their operations, conformably to the impending changes of the atmosphere, is simply this: if the weather is likely to become rainy, windy, or in other respects disagreeable, they fix the terminating filaments, on which the whole web is suspended, unusually short; and in this state they await the influence of a temperature which is remarkably variable. On the contrary, if the terminating filaments are made uncommonly long, we may in proportion to their lengths conclude that the weather will be severe, and continue so at least for ten or twelve days. But if the spiders be totally indolent, rain generally succeeds; though, on the other hand, their inactivity during rain is the most certain proof that it will be only of short duration, and followed with fair, and very constant weather. According to further observations, the spiders regularly make some alterations in their webs or nets every twenty-four hours; if these changes take place between the hours of six and seven in the evening, they indicate a clear and pleasant night.

In the year 1714, M. Bon communicated to the Society of Sciences at Montpellier, a discovery which he had made respecting the webs of spiders, the fibres of which formed a silk which was superior in fineness to that of the silk-worm. The Duke de Noailles, he added, had ordered a pair of stockings to be spun of the spider's silk, which was presented to the Duchess of Burgundy, and acknowledged by her and the whole court, to be of extraordinary fineness, and surpassing in beauty, stockings spun of silk-worms' fibres. This discovery excited great interest at the time, and M. de Reaumur was directed by the society to make the necessary experiments; which, however, terminated unfavourably to the cultivation of this species of manufacture, on account of the difficulty of breeding the spiders, and the great number required to produce any quantity of silk. M. de Reaumur says, that two hundred and eighty-eight spiders would only furnish as much silk as one silk-worm; and that it would take six hundred and sixty-three thousand, five hundred and fifty-two to produce a pound of silk. For these reasons,

therefore, the scheme, which was one of much ingenuity, was abandoned.

To put the ingenuity of the spider to the test, a gentleman frequently placed one on a small upright stick, and surrounded the base with water. After having reconnoitered and discovered that the ordinary means of escape were cut off, it ascended the stick, and standing nearly on its head, ejected its web, which the wind soon carried to some contiguous object. Along this the sagacious insect effected its escape, not however until it had ascertained, by several exertions of its whole strength, that its web was securely attached to the other end.

In January, 1777, died John Ross, LL.D. professor of languages in the King's university of Aberdeen. His death was occasioned by swallowing a spider in a glass of claret. Upon dissection, his stomach was found to be much ulcerated, and distended beyond the usual size.

It is curious to observe the motions of a spider, when he has taken a wasp in his toils. He seems to be perfectly aware that the wasp has the power of annoying him with its sting, and he carefully avoids coming in contact with it, but winds thread round and round it till the wasp can neither escape nor do him any injury. The wasp soon dies for want of food, when the spider feeds upon him.

THE LOCUST.

In July, 1827, the Russian general, Cobley, had a grand battue after the locusts, from his estate of Coblewka, along the borders of the sea of Oschakoff. The locusts were marching in twenty-four columns, and were destroying all the crops. General Cobley collected all the peasants on his estate, and from all the neighbouring country, amounting to five hundred persons. They were armed with pitchforks, spades, drums and bells, and thus equipped, they commenced their march against the locusts. They soon compelled them to retreat, and pursued them incessantly towards the sea, where they were forced to jump into the water, and drown themselves. Three days afterwards, the sea-shore was covered with the dead locusts, cast up

by the waves; the air was infected by a fetid exhalation, and great numbers of poisoned fish were cast up by the waves on the strand. It is probable that the fish had fed on the locusts. During eight days fishing was forbidden. These facts were authenticated by an official report addressed to the quarantine office, at Odessa, by the Chief of the Cossacks, employed to guard the coast.

THE PUNCTURED MOTH.

The larvæ of the moth (*Tinea punctata*,) have been directed by M. Habenstreet, of Munich, so as to work on a paper model suspended from the ceiling of a room. To this model he can give any form and dimensions, and he has thus been enabled to obtain square shawls, an air balloon four feet high, and a woman's complete robe, with the sleeves, but without seams. One or two larvæ can weave a square inch of cloth. A great number are, of course, employed, and their motions are interdicted from the parts of the model not to be covered, by oiling them. The cloth exceeds in fineness the lightest gauze, and has been worn as a court dress by the Queen of Bavaria. We have no doubt but the same object might be effected by directing the labours of the larvæ of various British moths and butterflies, or perhaps spiders.

THE BEE.

A hive contains three kinds of bees. 1. A single 'queen-bee,' distinguished by the great length of her body, and the proportional shortness of her wings. 2. 'Working-bees, female non-breeders,' or, as they were formerly called, 'neuters,' to the amount of *many thousands*: these are the smallest sized bees in the hive, and are armed with a sting. 3. 'Drones' or 'males,' to the number perhaps of 1500 or 2000: these are larger than the workers, and of a darker colour; they make a greater noise in flying, and have no sting. The whole labour of

the community is performed by the workers: they elaborate the wax, and construct the cells; they collect the honey, and feed the brood. The drones, numerous as they are, serve no other purpose than to insure the impregnation of the few young queens that may be produced in the course of the season; and they are regularly massacred by the workers in the beginning of autumn.

It is the office of the queen-bee to lay the eggs. These remain about three days in the cells before they are hatched. A small white 'worm' then makes its appearance, (called indifferently 'worm, larva, maggot or grub;') this larva is fed with honey for some days, and then changes into a 'nymph or pupa.' After passing a certain period in this state, it comes forth a perfect winged insect.

The impregnation of the queen-bee was long a subject involved in the most profound obscurity. That the drones were males was evident; but the most careful observation had never been able to detect any thing like sexual intercourse between them and the queen bees. Schirach (a German naturalist, well known for his discoveries concerning bees) boldly denied that such intercourse was necessary to her impregnation; and in this he was stoutly supported by our countryman Bonner. Swammerdam, again, remarking that the drones, at certain seasons, when collected in clusters, exhaled a strong odour, broached an opinion that this odour, proceeding from whole clusters of drones, was a kind of *aura seminalis*, which produced fecundation by penetrating the body of the female. There are generally from 1500 to 2000 males in a hive, while there are only two or three queens to be impregnated in a season; and Swammerdam seemed to have found, in his hypothesis, an easy explanation of this enormous disproportion in the numbers of the sexes. Réaumur, however, combated this fanciful doctrine; and Huber has confuted it by direct experiment. He confined all the drones of a hive in a tin case, perforated with minute holes, sufficient to allow any emanation to escape. This tin case was placed in a well inhabited hive, where there was a young queen, who could not fail to be subjected to the odour; but she remained barren. Maraldi was the first to suggest another hypothesis, which apparently possessed a greater degree of probability; he imagined that the eggs were fecundified by the drones, after

being deposited in the cells, in a way analogous to the fecundation of the spawn of fishes by the milters. Mr Debrow of Cambridge, (in Phil. Trans. 1777,) strenuously supported this doctrine, and gave it a certain degree of plausibility, by referring to numerous experiments: he even affirmed, that the milt-like fluid of the drones might be seen in the cells. The supposition that the drones performed this important office, satisfactorily accounted for the prodigious numbers of them found in a hive. But Mr Debrow does not seem to have attended to this circumstance,—that great numbers of eggs are laid by the queen between the months of September and April, which prove fertile, although in that season there exist no males to supply the milt-like liquor. M. Huber was of opinion, that the appearance of a fluid had been merely an optical illusion, arising from the reflexion of the light at the bottom of the cell. He made the direct experiment of rigidly excluding every male from a hive, and yet found that eggs laid by the queen in this interval were as fertile as when the males were admitted. M. Hattorf endeavoured to show that the queen is impregnated by herself. This was also M. Schirach's opinion; and it seems to have been that of Mr Bonner. It is an opinion, however, that requires no refutation. The cautious Huber, remarking how much confusion had arisen from making experiments with queens taken indiscriminately from the hive, (the source of the error just mentioned,) thenceforward selected those which were decidedly in a virgin state, and with whose history he was acquainted from the moment they had left the cell. From many experiments made in the course of the years 1787 and 1788, he found, that the young queens are never impregnated as long as they remain in the interior of the hive: if confined within its walls, they continue barren, though amidst a seraglio of males. To receive the approaches of the male, the queen soars high in the air, choosing that time of day when the heat has induced the drones to issue from the hive; and love is now ascertained to be the motive of the only distant journey which a young queen ever makes. From this excursion she returns in the space of about half an hour, with the most evident marks of fecundation; for, far from being satisfied with the prolific *aura* of Swammerdam, she actually carries away with her the *ipsa verenda* of the poor drone, who never lives to see his offspring,

but falls a sacrifice to the momentary bliss of his aërial amour. The most complete proof of these facts was made by a number of experiments.

In the natural order of things, or when impregnation is not retarded, the queen begins to lay the eggs of workers forty-six hours after her intercourse with the male, and she continues for the subsequent eleven months to lay these alone; and it is only after this period, that a considerable and uninterrupted laying of the eggs of drones commences. When, on the contrary, impregnation is retarded after the twentieth day, the queen begins, from the forty-sixth hour, to lay the eggs of drones; and she lays no other kind during her whole life.

The working bees had for ages been considered as entirely destitute of sex; and hence, in the writings of many authors they are denominated 'neuters.' From the experiments of Schirach and of Huber, it seems now to be clearly ascertained that the workers are really of the female sex; but that the organs of generation are small and imperfect, being capable, however, of development, if the larvæ be fed with royal jelly.

Schirach discovered, that when bees are by any accident deprived of their queen, they have the power of selecting one or two grubs of workers, and of converting them into queens; and that they accomplish this, by greatly enlarging the cells of those selected larvæ, by supplying them more copiously with food, and with food of a more pungent sort than is given to the common larvæ. "All my researches," says Huber, "establish the reality of the discovery. During ten years that I have studied bees, I have repeated M. Schirach's experiment so often, and with such uniform success, that I can no longer have the least doubt on the subject." The same testimony is given by Mr Bonner, who declares, that "having repeated the experiment again and again, he can affirm it with the utmost confidence and certainty."* M. Schirach's discovery may now therefore be considered as established beyond controversy.

M. Huber gives the following curious account of the manner in which bees proceed in forming capacious cells for the workers' grubs destined to royalty.

"Bees soon become sensible of having lost their queen, and

* Bonner on bees, p. 60.

in a few hours commence the labour necessary to repair their loss. First, they select the young common worms, which the requisite treatment is to convert into queens, and immediately begin with enlarging the cells where they are deposited. Their mode of proceeding is curious; and the better to illustrate it, I shall describe the labour bestowed on a single cell, which will apply to all the rest containing worms destined for queens. Having chosen a worm, they sacrifice three of the contiguous cells; next they supply it with food, and raise a cylindrical enclosure around, by which the cell becomes a perfect tube, with a rhomboidal bottom; for the parts forming the bottom are left untouched. If the bees damaged it, they would lay open three corresponding cells on the opposite surface of the comb, and consequently destroy their worms, which would be an unnecessary sacrifice, and nature has opposed it. Therefore, leaving the bottom rhomboidal, they are satisfied with raising a cylindrical tube around the worm, which, like the other cells in the comb, is horizontal. But this habitation remains suitable to the worm called to the royal state, only during the first three days of its existence: another situation is requisite for the other two days it is a worm. Then, which is so small a portion of its life, it must inhabit a cell nearly of a pyramidal figure, and hanging perpendicularly. The workers therefore gnaw away the cells surrounding the cylindrical tube, mercilessly sacrifice their worms, and use the wax in constructing a new pyramidal tube, which they solder at right angles to the first, and work it downwards. The diameter of this pyramid decreases insensibly from the base, which is very wide, to the point. In proportion as the worm grows, the bees labour in extending the cell, and bring food, which they place before its mouth, and around its body, forming a kind of cord around it. The worm, which can move only in a spiral direction, turns incessantly to take the food before its head: it insensibly descends, and at length arrives at the orifice of the cell. Now is the time of transformation to a nymph. As any further care is unnecessary, the bees close the cell with a peculiar substance appropriated for it, and there the worm undergoes both its metamorphoses.'

M. Huber confirms the discovery of M. Riems, concerning the existence, occasionally, of common working bees that are capable of laying eggs. Eggs were observed to increase in

number daily in a hive in which there were no queens of the usual appearance; but small queens considerably resemble workers, and to discriminate them required minute inspection.

"My assistant," says M. Huber, "then offered to perform an operation that required both courage and patience, and which I could not resolve to suggest, though the same expedient had occurred to myself. He proposed to examine each bee in the hive separately, to discover whether some small queen had not insinuated herself among them, and escaped our first researches. —It was necessary, therefore, to seize the whole bees, notwithstanding their irritation, and to examine their specific character with the utmost care. This my assistant undertook, and executed with great address. Eleven days were employed in it; and, during all that time, he scarcely allowed himself any relaxation, but what the relief of his eyes required. He took every bee in his hand; he attentively examined the trunk, the hind limbs, and the sting; and he found that there was not one without the characteristics of the common bee, that is, the little basket on the hind legs, the long trunk, and the straight sting."

They afterwards seized a fertile worker in the very act of laying; and they thus describe her appearance, "she presented all the external characteristics of common bees; the only difference we could recognise, and that was a very slight one, consisted in the belly seeming less, and more slender than that of workers. On dissection, her ovaries were found more fragile, smaller, and composed of fewer oviducts than the ovaries of queens. We counted eleven eggs of sensible size, some of which appeared ripe for laying. This ovary was double, like that of queens." How or when these fertile workers are impregnated is quite unknown.

Fertile workers resemble queens whose impregnation has been retarded, in this, that they lay the eggs of drones only, never those of workers; and also in this, that they sometimes place their eggs in royal cells. It is remarkable, however, that in the case of queens, whose impregnation has been retarded, laying their eggs in royal cells, the bees build them up, and brood over them until the last metamorphosis of the included drones; but that when eggs are deposited in royal cells by fertile workers, the bees, although at first they pay due attention to the larvæ, never fail to destroy them in the course of a few days.

M. Huber observes, that fertile workers appear in those hives only that have lost the queen, and where of course a quantity of royal jelly is prepared for feeding the larvæ intended to replace her. He suspects that the bees, either by accident or by a particular instinct, the principle of which is unknown, drop some particles of royal jelly into cells contiguous to those containing the worms destined for queens. The larvæ of workers that thus casually receive portions of this active aliment, are affected by it, and their ovaries acquire a certain degree of expansion: from the want of full feeding, and owing to the smallness of their cells, this expansion is only partial, and such fertile workers remain of the ordinary size of working bees, and lay only a few eggs. The royal jelly, when pure, may be known by its pungent taste; but when mixed with other substances, it is not easily distinguished. M. Huber repeatedly tried to feed some of the larvæ of workers in other parts of the hive, with the royal jelly, in order to observe the consequences; but he found this to be a vain attempt, the bees immediately destroying such worms, and themselves devouring the food. It has not therefore been directly ascertained, that all fertile workers proceed from larvæ that have received portions of the royal food; but M. Huber observed, that they were uniformly such as had passed the vermicular state, in cells contiguous to the royal ones. "The bees, (he remarks,) in their course thither, will pass in numbers over them, stop, and drop some portion of the jelly destined for the royal larvæ." This reasoning, though not conclusive, is plausible. The result is so uniform, that M. Huber says he can, whenever he pleases, produce fertile workers in his hives. They are probably, he adds, always produced, in greater or less numbers, whenever the bees have to create to themselves a new queen; and the reason that they are so seldom seen, probably is, that the queen bees attack and destroy them without mercy whenever they perceive them.

When a supernumerary queen is produced in a hive, or is introduced into it in the course of experiment, either she or the rightful owner soon perishes. The German naturalists, Schirach and Riems, imagined that the working-bees assailed the stranger, and stung her to death. Réaumur considered it as more probable, that the sceptre was made to depend on the issue of a single combat between the claimants; and this conjecture is

verified by the observations of Huber. The same hostility towards rivals, and destructive vengeance against royal cells, animates all queens, whether they be virgins, or in a state of impregnation, or the mothers of numerous broods. The working-bees, it may here be remarked, remain quiet spectators of the destruction, by the first hatched queens, of the remaining royal cells; they approach only to share in the plunder presented by their havoc-making mistress, greedily devouring any food found at the bottom of the cells, and even sucking the fluid from the abdomen of the nymphs before they toss out the carcasses.

The following fact, connected with the subject, is one of the most curious perhaps in the whole history of this wonderful insect. Whenever the workers perceive that there are two rival queens in the hive, numbers of them crowd around each: they seem to be perfectly aware of the approaching deadly conflict, and willing to prompt their amazonian chieftains to the battle; for, as often as the queens show a disinclination to fight, or seem inclined to recede from each other, or to fly off, the bees immediately surround and detain them; but when either combatant shows a disposition to approach her antagonist, all the bees forming the clusters, instantly give way to allow her full liberty for the attack. It seems strange that those bees who in general show so much anxiety about the safety of their queen, should, in particular circumstances, oppose her preparations to avoid impending danger,—should seem to promote the battle, and to excite the fury of the combatants.

When a queen is removed from a hive, the bees do not immediately perceive it; they continue their labours; watch over the young, and perform all their ordinary occupations. But, in a few hours, agitation ensues; all appears a scene of tumult in the hive. A singular humming is heard; the bees desert their young; and rush over the surface of the combs with a delirious impetuosity. They have now evidently discovered that their sovereign is gone; and the rapidity with which the bad news now spreads through the hive, to the opposite side of the combs, is very remarkable. On replacing the queen in the hive, tranquillity is almost instantly restored. The bees, it is worthy of notice, recognise the individual person of their own queen. If another be palmed upon them, they seize and surround her, so

that she is either suffocated or perishes by hunger; for it is very remarkable, that the workers are never known to attack a queen bee with their stings. If, however, more than eighteen hours have elapsed before the stranger queen be introduced, she has some chance to escape: The bees do at first seize and confine her; but less rigidly; and they soon begin to disperse, and at length leave her to reign over a hive in which she was at first treated as a prisoner. If twenty-four hours have elapsed, the stranger will be well received from the first, and at once admitted to the sovereignty of the hive. In short, it appears that the bees when deprived of their queen, are thrown into great agitation; that they wait about twenty hours, apparently in hopes of her return; but that after this interregnum, the agitation ceases; and they set about supplying her loss by beginning to construct royal cells. It is when they are in this temper, and not sooner, that a stranger queen will be graciously received: and upon her being presented to them, the royal cells, in whatever state of forwardness they may happen to be, are instantly abandoned, and the larvæ destroyed.

It is well known, that after the season of swarming, a general massacre of the drones is commenced. Several authors assert in their writings, that the workers do not sting the drones to death, but merely harass them till they be banished from the hive and perish. M. Huber contrived a glass table, on which he placed several hives, and he was thus able to see distinctly what passed in the bottom of the hive, which is generally dark and concealed: he witnessed a real and furious massacre of the males, the workers thrusting their stings so deep into the bodies of the defenceless drones, that they were obliged to turn on themselves as on a pivot, before they could extricate them. The work of death commenced in all the hives much about the same time. It is not, however, by a blind or indiscriminating instinct that the workers are impelled thus to sacrifice the males; but if a hive be deprived of its queen, no massacre of the males takes place in it, while the hottest persecution rages in all the surrounding hives. In this case, the males are allowed to survive over winter. The drones are also suffered to exist in hives that possess fertile workers, but no proper queen; and, what is remarkable, they are likewise spared in hives governed by a queen, whose impregnation has been retarded. Here then, we

perceive a counter instinct opposed to that which would have impelled them to the usual massacre.

Regarding the hatching of the queen bee, when the pupa is about to change into the perfect insect, the bees render the cover of the cell thinner by gnawing away part of the wax; and with so much nicety do they perform this operation, that the cover at last becomes pellucid, owing to its extreme thinness. This must not only facilitate the exit of the fly, but, M. Huber remarks, it may possibly be useful in permitting the evaporation of the superabundant fluids of the nymph. After the transformation is complete, the young queens would, in common course, immediately emerge from their cells as workers and drones do; but the bees always keep them prisoners for some days in their cells, supplying them in the mean time with honey for food; a small hole being made in the door of each cell, through which the confined bee extends its proboscis to receive it. The royal prisoners continually utter a kind of song, the modulations of which are said to vary. The final cause of this temporary imprisonment, it is suggested, may possibly be, that they may be able to take flight at the instant they are liberated. When a young queen does at last get out, she meets with rather an awkward reception; she is pulled, bit, and chased, as often as she happens to approach the other royal cells in the hive. The purpose of nature here seems to be, that she should be impelled to go off with a swarm as soon as possible. A curious fact was observed on these occasions: when the queen found herself much harassed, she had only to utter a peculiar noise, (the commanding voice, we may presume, of sovereignty,) and all the bees were instantaneously constrained to submission and obedience. This is indeed one of the most marked instances in which the queen exerts her sovereign power.

A swarm is always led off by a single queen, either the sovereign of the parent hive, or one recently brought into existence. If, at the return of spring, we examine a hive well peopled, and governed by a fertile queen, we shall see her lay a prodigious number of male eggs in the course of May, and the workers will choose that moment for constructing several royal cells. This laying of male eggs in May, M. Huber calls the 'great laying;' and he remarks, that no queen ever has a great laying till she be eleven months old. It is only after finishing this

laying, that she is able to undertake the journey implied in leading a swarm; for, previously to this, '*latum trahit alvum*, which unfits her for flying. There appears to be a secret relation between the production of male eggs and the construction of royal cells. The great laying commonly lasts thirty days: and regularly on the twentieth or twenty-first, several royal cells are founded.

When the larvæ hatched from the eggs laid by the queen in the royal cells are ready to transform to nymphs, this queen leaves the hive, conducting a swarm along with her; and the first swarm that proceeds from the hive is uniformly conducted by the old queen. M. Huber remarks, that it was necessary that instinct should impel the old queen to lead forth the first swarm; for that she being the strongest, would never have failed to have overthrown the younger competitors for the throne. An old queen never quits a hive at the head of a swarm, till she have finished her laying of male eggs; but this is of importance, not merely that she may be lighter and fitter for flight, but that she may be ready to begin with the laying of workers' eggs in her new habitation, workers being the bees first needed in order to secure the continuance and prosperity of the newly founded commonwealth.

After the old queen has conducted the first swarm from the hive, the remaining bees take particular care of the royal cells, and prevent the young queens successively hatched, from leaving them, unless at an interval of several days between each. A swarm is never seen, unless in a fine day, or, to speak more correctly, at a time of the day when the sun shines, and the air is calm. Sometimes we have observed all the precursors of swarming, disorder and agitation; but a cloud passed before the sun, and tranquillity was restored; the bees thought no more of swarming. An hour afterwards, the sun having again appeared, the tumult was renewed; it rapidly augmented; and the swarm departed. A certain degree of tumult commences as soon as the young queens are hatched, and begin to traverse the hive: the agitation soon pervades the whole bees; and such a ferment then rages, that M. Huber has often observed the thermometer in the hive rise suddenly from about 92° to above 104°: this suffocating heat he considers as one of the means employed by nature for urging the bees to go off in

swarms. In warm weather, one strong hive has been known to send off four swarms in eighteen days.

The young queens conducting swarms from their native hive, are still in a virgin state. The day after being settled in their new abode, they generally set out in quest of the males, and this is usually the fifth day of their existence as queens. Old queens conducting the first swarms require no renewal of their intercourse with the male, a single interview being sufficient to fecundate all the eggs that a queen will lay for at least two years.

We shall conclude our observations on bees by a few miscellaneous anecdotes regarding them.

In October, 1818, Mr M'Lauren, brewer, Newton Stewart, Wigtonshire, removed a very fine watch-dog from his usual kennel to a situation in the garden, with a view of protecting his fruit from the attempts of juvenile depredators. Unfortunately, however, the poor dog was chained very near a bees' scape, the enraged and multitudinous population of which, not relishing the presence of such a neighbour, sallied out *en masse*, and in a mere twinkling literally transferred the seat of the hive from the cone of straw to the mastiff's body. It was in vain that the generous animal attempted to defend himself from such ferocious and unwonted foes; every time he opened his mouth, the bees descended his throat in hundreds, leaving their stings in the passage, and like certain patriots of the biped race, heedlessly sacrificing their own lives to the supposed good of the republic. The dreadful yells of the mastiff, at length attracted the notice of the brewer and his neighbours; but their assistance came too late, as the poor animal was so dreadfully stung that he died in a few hours.

Some years ago, Mr Rogers of Abbots, Ripton, having occasion to call on Mr Shelton, of Park-house, in the same parish, hung the rein of his horse over a gate, close to which stood a row of bee hives; being much teased by the flies, he became restless, and twisting about overturned one of the hives, when the swarm settled upon his head. On seeing this, Mr Shelton slipped off the bridle, in hopes that when at liberty, the exasperated insects would soon cease to torture the poor animal; but unfortunately, in dashing off, he overturned about a dozen more hives, the consequence of which was, that he was literally covered with bees which stung him to that degree, that in his

agony he rushed into a pond, where after rolling once or twice over, he crawled out, and expired on the bank.

A lady in the neighbourhood of Cupar in Fife, who has long taken a particular interest in the management of bees, observing that in the apiary, where the lives were placed very near to each other, there was a considerable risk, that the bees might mistake their respective habitations, had recourse to flags of different coloured paper, which she placed somewhat tastefully over the entrance of each hive, that the bees on their return from rural excursions, might easily perceive and recognise their different flags. This method she naturally inferred would prevent all accidental mistakes, and if any of the bees in future entered their neighbour's hive, they would deserve no mercy to be shown to them. Instead, however, of producing harmony, and preventing mistakes as was expected, this arrangement had quite a contrary effect, and during the display of these standards, nothing but war, devastation, and death prevailed.

Some time ago, a singular and interesting exhibition of the wonderful extinctive principle of the bee occurred in the neighbourhood of Portsmouth. It appears that a swarm of these sagacious insects, the property of a person living at Pest-house (about half a mile from Portsmouth) directed their course in search of food towards the stocks of hives belonging to Mr Rattu, an eminent gardener and florist, residing at Fretton, about half a mile from Pest-house. It is supposed that they were invited thither by the luxuriance and rich abundance of delicious sweets that the plantations of Mr Rattu so temptingly afforded; especially by the production of a bed of mignonette sown near the apiary of the occupier of the premises. It appears that a squadron or detachment of these intruders from Pest-house first made their appearance in the more refullescent dominions of their neighbours; which intrusion was justly resented on their part by strong and vigorous opposition, and many of the depredators were killed and wounded. Those who escaped to tell the tale of this disastrous invasion, hastened back to their own community; and, according to the well known vengeful disposition of the bee, the whole body at Pest-house was speedily put in motion, and a war of extermination declared against the innocent opposers of the late invaders. It seems that the enemy's entire force did not move towards the inhabitants at

Freton at the same time, but went over in detached bodies, and arrived at different intervals, until a mass was formed, near the mouth of the hives, of the size of a hat, consisting in numbers of about seven or eight thousand bees ! Thus congregated, they were at liberty to commit their unlawful ravages upon the rightful property of others with impunity, which could not be borne with, and thereby a combat was provokingly induced. A spirited resistance having been determined on, a battle ensued, which for fourteen successive days, was obstinately supported ; the enemy retiring every evening, and returning to renew the attack in the morning. The Pest-house invaders were constantly observed towards the close of the day to direct their flight, *en masse*, over the parsonage house at Kingston. The result of this conflict proved destructive to the innocent defenders at Freton, several thousands of them being killed, and their homes during the fortnight of voracious contention plundered of about two hundred weight of honey,—squadrons of the depredators being constantly employed, on the several days, in carrying off the blood-stained spoils. Mr Rattu was, during the time, frequently occupied near to the apiary in defending his property, by a piece of wood in the shape of a battledore, and, as he experienced no difficulty in distinguishing his own bees from that of the Pest-house, he by this means destroyed many of the latter, as they individually came within his reach. These were black bees, not very common in this island ; those of Mr Rattu's were brindled with yellow stripes ; and he observed that they were very weak. It is known that bees in attacking one another do not always use the sting, but employ their pincers, on any occasion of defence, and offence. The sting is formed by two piercers, is barbed, and has serrated edges ; and therefore, when they employ this instrument, in the infliction of a wound, they are not able to disengage it, but in the effort to escape after having stung an animal, the whole sting and part of the intestines are separated from the body, and thus the insect proves the cause of its own destruction.

In the year 1766, Mr Wildman of Plymouth, who became famous on account of his command over bees, visited London. He paid his respects to Dr Templeton, secretary to the Society of Arts, in his bee dress. He went in a chair with his head

and face covered with bees, and a most venerable beard of them hanging from his chin. The ladies and gentlemen, who were assembled to witness this novel spectacle, were soon convinced that they need be under no apprehension of injury from these insects, and therefore went close to Mr Wildman, and conversed with him. After remaining some time he ordered the bees to retire to their hive, and they instantly obeyed.

In August 1831, as the Honiton packet was leaving a port in Wales, on her voyage to Lyme, the master perceived a swarm of bees settle on a rock which the rising tide would soon have covered. He sent a boat with a tub, which was sugared for the purpose, which attracted the bees, and brought them aboard. They took readily to their new habitation, and on removing them to a hive at Lyme Cobb, it was perceived that they had commenced a comb. During the voyage, they flew ashore for honey, and followed the vessel again, which was at times sailing with a strong breeze.

On Wednesday the 24th June, 1829, while Mr Farquharson, at Bankend, and his daughter, a young woman about 16 years of age, were standing at a short distance from a bee-hive, they were suddenly surrounded by thousands of the little insects—the hive having just thrown off a swarm. Instead, however, of flying to a bush or tree for shelter, as expected, they alighted on the young woman's head. Fortunately she had courage and presence of mind equal to the occasion; for, instead of running away, or attempting to remove or annoy them, as most persons would have done in the same situation, she remained quietly where she was till the whole swarm alighted upon her. Some idea may be formed of the firmness and resolution evinced under such trying circumstances, when it is stated that she had neither cap nor bonnet on, and that the swarm was so large that it completely covered her face, breast, and shoulders—so that she could neither see nor speak. In this situation she remained till her father brought a hive, when the bees moved into it in the usual way, without her receiving so much injury as a single sting. It is well known that bees, when swarming, are so inoffensive that nothing but violence will induce them to use their stings;—when provoked and irritated, however, they become desperate; and, in the present instance, had the young woman attempted to extricate herself, or used the least violence,

the consequences must have been dreadful—very likely fatal. She knew this, and acted accordingly—affording an admirable lesson to all who may be placed in the same predicament.

“A large brown slug,” says Mr Jesse, “made its way into a glass hive, where the operations of the bee could be distinctly seen. Having killed the slug, and finding that they were unable to get it out of the hive, they covered it over with the thick resinous substance called propolis, and thus prevented its becoming a nuisance to the colony. Into the same hive one of the common garden snails (*Helix hortensis*) gained admittance. Instead of embedding it in propolis, the bees contented themselves with fixing it to the bottom of the hive by plastering the edge with that substance.

“I have now in my possession a regular fortification made of propolis, which one of my stocks of bees placed at the entrance of their hive, to enable them the better to protect themselves from the attacks of wasps. By means of this fortification, a few bees could effectually guard the entrance by lessening the space of admission, which I had neglected to do for them.

“Bees show great ingenuity in obviating the inconvenience they experience from the slipperiness of glass, and certainly beyond what we can conceive that mere instinct would enable them to do. I am in the habit of putting small glass globes on the top of my straw hives, for the purpose of having them filled with honey; and I have invariably found that before the bees commence the construction of combs, they place a great number of spots of wax at regular distances from each other, which serve as so many foot stools on the slippery glass, each bee resting on one of these with its middle pair of legs, while the fore-claws were hooked with the hind ones of the next above, thus forming a ladder by means of which the workers were enabled to reach the top, and begin to make their combs there. I was glad to find this circumstance recorded by Dr Bevau's very agreeable work on the honey-bee, in which another very striking illustration of the reasoning powers of bees is mentioned. Dr Bevau says that a friend of his, on inspecting his becomb, perceived that a centre comb, burdened with honey, had separated from its attachments, and was leaning against another comb, so as to prevent the passage of the bees between them. This accident excited great activity in the colony, but of what

nature could not be ascertained at the time. At the end of a week, the weather being cold and the bees clustered together, it was observed through the window of the box that they had constructed two horizontal pillars between the combs alluded to, and had removed so much of the honey and wax from the top of each, as to allow the passage of a bee ; in about ten days more there was an uninterrupted thoroughfare, the detached comb at its upper part had been secured by a strong barrier, and fastened to the window with the spare wax. This being accomplished, the bees had removed the horizontal pillars first constructed, as being of no further use. Huber relates an anecdote something similar."

THE ANT.

"Ants present us with many striking analogies with bees ; as in them we may in each species distinguish three modifications of sex, namely, the *males*, the *females*, and the *neuters* or *labourers* ; the latter being, in respect to sex, in the same condition as the working bees, that is, they are females in whom the generative organs are not developed, and who of course are barren. In each hive of bees, however, there is but one queen ; whereas a great number of queens, or female ants, are met with, living in the utmost harmony, in the same nest. It appears, that any of the larvæ of the labouring class of bees may be raised to the rank of queen, that is, may acquire a development of organs, by a particular mode of feeding. Whether the same circumstance obtains, with respect to the female ant, has not yet been ascertained. The various toils which contribute to the welfare of the republic are confided, in both communities, to the labourers, who act as the architects of the city, as the soldiers of the garrison, and as the nurses and guardians of the rising generation ; while the other classes have no other duties to perform than those of furnishing recruits to the colony.

"The different species of ants, like the nations of our own species, are distinguished from each other by great diversities of manners. This is strikingly shown in the variety of modes in which they construct their habitations. Some employ merely

earth as the material ; some collect for the same purpose fragments of leaves, of bark, or of straw ; others use nothing but finely pulverised portions of decayed wood. The solid substance of trees is excavated by another species into numerous apartments, having regular communications with one another. Various other modifications may be observed in the architecture of the different species. The most perfect specimens of workmanship are generally exhibited by the smaller ants. The brown ant (*fourmi brune*) is particularly remarkable among the masonic tribes. Their nests are formed of parallel or concentric stories, each four or five lines in height ; the partitions being about half a line in thickness, and built of such fine materials, that the interior appears perfectly smooth. On examining each of these stories, we discover chambers of different sizes, having long galleries of communication. The ceilings of the larger spaces are supported by small pillars, sometimes by slender walls, and in other cases by arches. Some cells have but a single entrance ; others have passages, which open from the story underneath. In other parts, still larger central spaces, or halls are met with, in which a great number of passages terminate, like the streets and avenues to a market place. The whole nest often contains twenty of these stories, above the level of the ground, and at least as many below it. The surface of the nest is covered with a thicker wall, and has several doors admitting, in the day time, free ingress and egress. This species of ant is unable to bear much heat. During the day, therefore, and particularly when the sun shines, their doors are closed ; and they either keep at home, or venture out only through the subterraneous passages. When the dew has given freshness to the nest, and softened the earthy materials on its surface, they begin to make their appearance above ground. On the first shower of rain that occurs, the whole swarm are apprized of it, and immediately resume their architectural labours. While some are engaged in removing the earth below, others are employed in building an additional story on the top ; the masons making use of the materials furnished by the miners. The plan of the cells and partitions is first traced in relief on the walls, which are seen gradually to arise, leaving empty spaces between them. The beginnings of pillars indicate the situation of the future halls ; and the rising partitions show

the form of the intended passages. Upon the plan thus traced they continue building, till they have arrived at a sufficient elevation. Masses of moistened earth are then applied at right angles to the tops of the walls, on each side, and continued in a horizontal direction till they meet in the middle. The ceilings of the larger chambers are completed in the same manner ; the workers beginning from the angles of the walls, and from the tops of the pillars which have been raised in the centre. The largest of these chambers, which might be compared to the town hall, and is frequently more than two inches in diameter, is completed with apparently as much ease as the rest. This busy crowd of masons arriving in every direction, laden with materials for the building, hastening to avail themselves of the rain to carry on their work, and yet observing the most perfect order in their operations, must present the most interesting and amusing spectacle. They raise a single story in about seven or eight hours, forming a general roof as a covering to the whole ; and they go on, adding other stories, so long as the rain affords them the facility of moulding the materials. When the rain ceases, and is succeeded by a drying wind, before they have completed their work, the earth ceasing to adhere together, and crumbling into powder, frustrates all their labours ; as soon as they find this to be the case, they, with one accord, set about destroying the cells which they had begun, but had not been able to cover in, and distribute the materials over the upper story of what they had completed. Under these circumstances Mr Huber succeeded in getting them to resume their task by means of an artificial shower.

In tracing the designs of the cells and galleries, each ant appears to follow its own fancy. A want of accordance must therefore frequently take place at the point where their works join : but they never appear to be embarrassed by any difficulties of this kind. An instance is related, in which two opposite walls were made of such different elevations, that the ceiling of the one, if continued, would not have reached above half way of the height of the other. An experienced ant arriving at the spot seemed struck with the defect, and immediately destroyed the lower ceiling, built up the wall to the proper height, and formed a new ceiling with the materials of the former.

Nature, in providing the male and female ants with wings, must evidently have designed them for migration to distant abodes, where they might become the founders of new colonies. Arrived at the period of maturity, and furnished with perfect instruments of flight, they wait only till the warmth of the atmosphere is sufficiently genial; and do not quit their nests till the temperature has risen to above 67° of Fahrenheit. Busy swarms of these winged insects are then seen to issue from the nest, and to cover the neighbouring plants, expanding their wings, which reflect the sun's rays in a thousand brilliant colours. They are escorted in all their steps by the labourers, who appear to watch them with peculiar solicitude, frequently offering them food, and caressing them with their antennæ. At length they leave their attendants, and commence their flight, few being destined ever to return to the spot which gave them birth. The act of fecundation is generally performed during their flight. The males having fulfilled the purposes of nature, are now useless members of the society; it does not, however, appear that they are ever massacred by the labourers, as is the case with drones: but they are left to perish for want of sustenance; being unprovided with the means of procuring it for themselves, and being separated from those by whose bounty they had hitherto been fed. The females, when impregnated, seek proper habitations, where, as will afterwards appear, they lay the foundations of new republics.

All the impregnated females, however, are not lost, in this way, to the parent state: many are detained by the labourers before they can take their flight, and a few are impregnated in the nest itself. The labourers are every where lying in wait for them, and forcibly seize them wherever they are to be found; they immediately deprive them of their wings, and drag them to the nest. Here they are kept close prisoners for several days: their keepers watching them with the greatest assiduity, but carefully supplying them with nourishment, and conveying them to situations where the temperature is the most grateful.

The fecundated females that escape detention, and quit for ever after the paternal roof, no sooner alight upon a spot where any loose earth is to be met with, than they set about forming a habitation. The first step they take is to cut off their own

wings, for which they have no longer any use:* and it is extremely curious, that they never perform this operation till they find a situation that promises to afford them an asylum. Having now no labourers to work for them, they perform all the household duties themselves. Like the mothers of other animals, they are indefatigable in their attention to their offspring. Thus the same individual, which, when surrounded at home by those who minister to all her wants, and relieve her from exertion, would have reposed in indolence, and been quite careless of her young, acquires new powers from necessity, and fulfils the intention of nature in the formation of new republics. It is impossible to produce a more striking example of variation in the character of animals produced by a change of external circumstances.

Regarding the way in which ants procure the means of subsistence, much error long prevailed. The collections of larvæ were long mistaken for magazines of corn and other food, which it was supposed the ants deposited in granaries, as provisions for winter consumption. But the truth is, that they are almost wholly carnivorous, and corn is certainly not an article on which they feed; they are total strangers to the art of hoarding, and none of their cells are constructed with this view. The ants, whose occupations confine them at home, depend for their food on the labourers, who forage for the whole society, and bring to the nest small insects, or portions of any animal substance that may fall in their way. When the game is too bulky to be easily transported, they fill themselves with nourishment, the greater part of which they disgorge on their return, for the benefit of those that are hungry. This nutritious fluid they retain unchanged for a considerable time, when prevented from imparting it to their companions.

The food which they appear to relish above all others, is an exudation from the bodies of several species of aphids, insects which abound on the plants in the vicinity of ant hills. This species of honey is absorbed with great avidity by the ants, and apparently without the least detriment to the insect that yields it.

* Linnæus had observed that the females, after impregnation, lost their wings, and did not return to the nest.

This fact had already been noticed by Boissier de Sauvages ; but several very interesting particulars, as to the mode in which this excretion is procured, have been brought to light by M. Huber. He informs us, that the liquor is voluntarily given out by the aphis, when solicited to do so by the ant, who, for that purpose, strikes it gently, but repeatedly, with its antennæ, using the same motions as it does when caressing its young. He is led to believe from observation, that the aphis retains this liquor for a longer time when the ants are not at hand to receive it. A single aphis is sufficient to supply in this way many ants with a plentiful meal. Even those among them who had acquired wings, and could therefore have easily escaped from the ants, if they had been so disposed, yielded this honey as freely as the others, and with as little appearance of fear or constraint.

Most insects become torpid when their temperature is much reduced. When it approaches the freezing point, they fall into a deep lethargy, and in that state require no food. Ants present a remarkable exception to this rule ; for they are not benumbed till the thermometer has sunk to 27° of Fahrenheit, or five degrees below the freezing point. They therefore have need of a supply of provisions during the greatest part of the winter ; although it is true that they are satisfied with much less than in summer. Their principal resource, however, under these circumstances, is still the same, namely, the honey of the aphis ; which natural secretion appears to be expressly designed for the subsistence of ants. What confirms this view of the intentions of nature is, that the aphis becomes torpid at precisely the same temperature as the ant ; a coincidence which it is hardly possible to attribute to mere chance. The winter haunts of the aphis, which are chiefly the roots of trees and shrubs, are well known to their pursuers ; and when the cold is not excessive, they regularly go out to seek their accustomed supply from these insects. Some species of ants have even sufficient foresight to obviate the necessity of these journeys ; they bring these animals to their own nests, where they lodge them near the vegetables on which they feed ; while the domestic ants prevent them from stirring out, guarding them with great care, and defending them with as much zeal as they do their own young.

But their sagacity goes even much further. They collect the eggs of the aphids, they superintend their hatching, continually moistening them with their tongue, and preserving them till the proper season for their exclusion, and in a word, bestow on them all the attention which they give to the eggs of their own species. When disturbed by an intruder, they carry off these eggs in great haste to a place of safety. Different species of aphids are to be found in the same nest: several kinds of gall insects and also of kermes serve the same purposes to the ants as the aphids, affording them in like manner juices possessed of nutritious qualities. All these live in perfect harmony with their masters, who so far from offering them any molestation, defend them with courage against the ants of other societies who might attempt to purloin them. That the ants have some notion of property in these insects, would appear from their occasionally having establishments for these aphids at a distance from their city, in fortified buildings which they construct for this purpose alone, in places where they are secure from invasion. Here the aphids are confined as cows in a dairy, to supply the wants of the metropolis.

Huber has been at great pains to ascertain by what means these insects are enabled to co-operate in the execution of these and other designs; a co-operation which is inexplicable except on the supposition that they possess a species of language, by which the intentions of individuals are imparted to one another, and to the community at large. It does not appear that ants are capable of emitting sounds so as to communicate at a distance. The sense of touch is with them the principal medium of conveying impressions to one another. Some of these impressions are communicated by the one striking its head against the corslet of the other; others by bringing their mandibles in contact. The former is the signal of danger; which is spread with astonishing quickness through the whole society. During the night as well as at other times, sentinels are stationed on the outside of their habitations, who, on the approach of danger, suddenly descend into the midst of the tribe, and spread the alarm on every side: the whole are soon apprized of the danger; and while the greater number rush forward to repel it, with every expression of displeasure and of rage, the rest, who are attending the eggs and larvæ, hasten with their charge to

places of greater security. The males and females, on the other hand, on being warned of the approaching combat, in which they feel themselves incapable of bearing any active part, fly for shelter to the most retired places in the vicinity.

The chief instruments by which other ideas are conveyed, appear to be the antennæ, which for that purpose are brought into contact, in various ways, with different parts of the body of the ant addressed.

Smith, in his "New Voyages to Guinea," says, "If the ants have not a language, (as many people believe they have,) yet they certainly have some method or other, whereby they easily make themselves to be understood, as I have often experienced in the following manner. When I have seen two or three straggling ants upon the hunt, I have killed a cockroach, and thrown it down before them. As soon as they have found what it was, they have sent one away for help, while the others have stayed and watched the dead body, till he returned at the head of a large posse; and if they have not been able to carry off the cockroach, another has been detached and sent away, who has soon returned with a fresh supply, sufficient to carry off their prey."

In the "Transactions of the French Academy," an account is given of a solitary ant, that was taken from an ant-hill, and thrown upon a heap of corn. It seemed attentively to survey this treasure, and then hastened back to its former abode, where it communicated intelligence of the land of plenty, for an immense host of its brethren quickly made their appearance, and commenced carrying off the corn.

Bonnet had imagined, that in their journeys ants directed their course chiefly by the scent remaining in the track which they had before passed. But it appears that they have various other means of finding their way; and must depend principally on the senses of sight and of touch, aided by the memory of local circumstances. If they should meet with annoyance in their nest, or, from any other cause, find it inconvenient to remain, they endeavour to find some other spot to which they may remove; and, for this purpose, the labourers scatter themselves abroad, and reconnoitre in every direction. The ant who has the good fortune to discover a convenient situation, returns immediately home, and by certain gestures acquaints her comrades with her success, and points out the direction of the place she has chosen.

The migrations of the fallow ants (*fourmis fauves*) are conducted in a very singular manner. The guide carries another ant in her mouth, to the place to which she intends the colony to remove. Both then return, and each taking up another ant, bring them in a similar manner to the new settlement. These, when instructed in the way, return and fetch others; and this process is continued by all the guides, their numbers increasing in rapid progression till the whole has been transported to the new place of abode.

It is impossible to contemplate the actions of such minute beings, in whom not only all the parental affections subsist in as full force as in the larger animals, but the social sympathies also prevail in a much more extraordinary degree, without feelings of wonder and admiration. The zeal with which the bee will devote its life to the service of the community of which it forms a part, has long been known; but the ant is not inferior to the bee either in courage or patriotism; and, moreover, bears testimony, by unequivocal actions, of a degree of tenderness and affection which we can hardly bring ourselves to conceive could animate a being of a condition so apparently inferior. Latreille, in the course of his experiments, had deprived some ants of their antennæ; their distress was no doubt perceived and shared by their companions, who caused a transparent liquor, which probably possessed some healing properties, to flow from their own mouths, and with this they anointed the wounds of the sufferers. Many traits of their fondness and tender care of their females were witnessed by Huber; they give the most remarkable proof of the permanence of their affection, when any of the impregnated females happen to die; in which case, five or six of her attendants remain with her for many days, licking and caressing the body without intermission, as if they hoped to recall her to life by their caresses.

We are informed by D'Azara, that during the inundations of the flat districts in South America, when the large ant hills, which are about three feet in height, are completely immersed in water, the ants by an ingenious contrivance, prevent their being carried away by the flood. They collect themselves into a compact mass, and keep a firm hold of each other, after having first attached one end of their body to some neighbouring plant, or other fixed point, leaving the other extremity free, so that they

float on the surface of the water during the continuance of the flood, which usually lasts some days.

Mr Huber, in his "Natural History," gives the following singular instance of the memory of ants. He says, "I took in the month of April, an ant hill from the woods, for the purpose of populating my large glazed apparatus; but having more ants than I had occasion for, I gave liberty to a number in the garden of the house where I lived. The latter fixed their abode at the root of a chestnut tree. The former became the subject of some private observations. I noticed them four months without allowing them to quit my study; at this time wishing them nearer to a state of nature, I carried the hive into the garden, and placed it ten or fifteen paces from the natural ant hill. The prisoners profiting by my negligence of not renewing the water which blockaded the passage, escaped, and ran about the environs of their abode. The ants established near the chestnut tree, met, and *recognised* their former companions, commenced mutually caressing each other with their antennæ, took them up by their mandibles, and led them to their own nests. They afterwards came in a crowd to the artificial ant hill to seek the fugitives, and even ventured to reach the bell glass, where they effected among the inhabitants a complete desertion, by carrying away successively all the ants they found there. In a few days the hive was completely depopulated. These ants had been apart for four months, and had no possible means of communication."

When large ants attack small ones they generally do it by surprise, but when the small ones are aware of an approaching assault, they guard against it, by intimating the attacks of their enemies to their companions, who never fail to arrive in crowds to their assistance. Mr Huber says, "I have witnessed a battle between the herculean and sanguine species of ants. The latter are only about half the size of their adversaries, but they had the advantage of them in point of number, and only, however, acted on the defensive. The earth, strewn with the dead bodies of their compatriots, bore witness that they had suffered the greatest carnage; they, therefore, took the prudent part of fixing their habitations elsewhere, and with great activity transported to a distance of fifty feet from the spot, their companions and the several objects that interested them. Small detachments of the workers were posted at little distances from the nest, ap-

parently placed there to cover the march of the recruits, and to preserve the city itself from any sudden attack. They struck against each other when they met, and had always their mandibles separated in the attitude of defiance. As soon as the herculean ants approached their camp, the sentinels in front assailed them with fury; they fought at first with single combat. The sanguine ant threw himself on the herculean ant, fastened on its head, and inundated it with venom. It sometimes quitted its antagonist with great quickness; more frequently, however, the herculean ant held between its feet its audacious enemy, the two champions then rolled themselves up in the dust, and struggled violently. The advantage was at first in favour of the largest ant; but his adversary was soon assisted by those of its own party, who collected round the herculean ant, and inflicted several deep wounds with their mandibles. The herculean ant yielded to numbers; and it either perished the victim of its temerity, or was conducted a prisoner to the enemy's camp."

Such are the combats between ants of different size; but if we wish to behold regular armies wage war in all its forms, we must visit those forests in which the fallow ants establish their dominion over every insect in their territory. "It is in these forests," continues Huber, "I have witnessed the inhabitants of two large ant hills engaged in spirited combat. They were composed of ants of the same species, alike in their extent and population, and were situated about a hundred paces distant from each other. Two empires could not possess a greater number of combatants.

"This prodigious crowd of insects covered the ground lying between two ant hills, and occupied a space of two feet in breadth. Both armies met at half way from their respective habitations, and there the battle commenced. Thousands of ants took their station upon the highest ground, and fought in pairs, keeping firm hold of their antagonists; a considerable number were engaged in the attack, and others leading away prisoners. The latter made several ineffectual attempts to escape, as if aware that, upon their arrival, they would experience a cruel death. The scene of warfare occupied a space of about three feet square. Those ants composing groups and chains, took hold of each other's legs and pincers, and dragged their an-

tagonists to the ground. These groups formed successively. The fight usually commenced by two ants, who seized each other by the mandibles. They were frequently so closely wedged together, that they fell upon their sides, and fought a long time in that situation in the dust, until a third came to decide the contest. It more commonly happened that both ants received assistance at the same time, when the whole four made ineffectual attempts to gain the battle. Ants of both parties joined them, and it was in this way they formed chains of six, eight, or ten ants, all firmly locked together; the equilibrium was only broken when several warriors from the same republic advanced at the same time, who compelled those that were enchained to let go their hold, when the single combats again took place.

“ On the approach of night, each party returned gradually to the city, which served it for an asylum. The ants, which were either killed or led away into captivity, not being replaced by others, the number of combatants diminished until their force was exhausted.

“ The ants returned to the field of battle before dawn. The groups again formed; the carnage recommenced with greater fury than on the preceding evening, and the scene of combat occupied a space of six feet in length, by two feet in breadth. Success was for a long time doubtful; and about mid-day the contending armies had removed to the distance of a dozen feet from one of their cities. The ants fought so desperately, that nothing could withdraw them from their enterprise; they seemed absorbed in one single object, that of finding an enemy to contend with.

“ These wars afford a surprising illustration of the instinct, or more properly the force of reason, in those minute animals. The ants know well their own party, even in the midst of the heat of battle; in which situations mankind have been known to err. In the extreme height of their fury the ants sometimes attack their comrades; but on recognising them they immediately relax their hold, and caress each other.

“ These governments are regulated with astonishing order; for the common operations of the two colonies thus at war were not suspended. The paths which led to a distance in the forest, were as much crowded as in time of peace, and all around the

ant hill order and tranquillity prevailed, with the exception only of that side on which the battle was raging. A crowd of these insects were constantly to be seen setting off for the scene of action, while others were returning with their prisoners. This war terminated without any disastrous results to the two republics; long continued rains shortened its duration, and the warriors ceased to frequent the road which led to the camp of the enemy."

M. Homberg informs us, that in Surinam there is a species of ant, called by the natives the *visiting ant*. These animals march in large troops, with the same regularity and precision as a regularly constituted army. They are welcome visitors to the natives, on account of their power of exterminating rats, mice, and other noxious animals with which that country abounds. No sooner do they appear, than all the coffers, chests of drawers, and locked up places in the house are thrown open for them, when they immediately commence their work of destruction of animal life, as if commissioned by nature for that purpose. The only regret of the natives is, that they pay their visits so seldom, as they usually re-appear but once in three or four years. The climate of Surinam seems so peculiarly adapted for the increase of these prolific pests, rats and mice, that the interval in which the ants are absent, is sufficient for these vermin to become again almost innumerable.

We are told by Baron Humboldt that ants abound to such a degree near Valencia, that their excavations resemble subterraneous canals, which are filled with water in the time of the rains, and become very dangerous to the buildings.

M. Malouet mentions in his account of his travels through the forests of Guyana, his arriving at a savannah, extending in a level plain beyond the visible horizon, and in which he beheld a structure that appeared to have been raised by human industry. M. de Prefontaine, who accompanied him in the expedition, informed him that it was an ant hill, which they could not approach without danger of being devoured. They passed some of the paths frequented by the labourers, which belonged to a very large species of black ants. The nest they had constructed, which had the form of a truncated pyramid, appeared to be from fifteen to twenty feet in height, on a base of thirty or forty feet. He was told that when the new settlers, in their attempts to

clear the country, happened to meet with any of these fortresses, they were obliged to abandon the spot, unless they could muster sufficient forces to lay regular siege to the enemy. This they did by digging a circular trench all round the nest, and filling it with a large quantity of dried wood, to the whole of which they set fire at the same time, by lighting it in different parts all round the circumference. While the entrenchments are blazing, the edifice may be destroyed by firing at it with cannon; and the ants being by this means dispersed, have no avenue for escape, except through the flames, in which they perish. The narrations of Mr Smeathman, relative to the white ant of Africa, are also calculated to raise our ideas of the magnitude of these republics of insects, which must surpass the largest empire in the numbers of their population.

The superiority of the faculties of ants has been traced to the strength of the social disposition which unites them. We might perhaps venture a step farther, and point out several circumstances in their physical condition, as the probable origin of this disposition to associate together. These are to be found, first in the delicacy of their perceptions, in which they appear to excel most insects. They are extremely sensible to variations of temperature, and generally averse to moisture. In the first stages of their existence, they are formed so as not to be capable of resisting the ordinary action of the air, and being totally helpless, would speedily perish, if left to themselves; and we have seen what assiduous and persevering care is required during the whole period of the hatching of the eggs, and the progress of the larva to maturity. All these circumstances place the young for a much longer time in a state of dependence upon their natural protectors, than in the case of most other insects; and in all these circumstances they agree with the bee and the wasp, which are alike gregarious. We recognise in our own species the foundation that is laid for the ties of society, by the helpless condition of the infant, which continues for so long a period to be dependent on others; and can we refuse to admit the operation of a similar principle in other departments of the animal creation, which are obedient to the laws which the same Providence has ordained for the good of all?

THE BEETLE.

THERE are various kinds of beetles, all of which have two wings enveloped in cases, in order to preserve them when the insect burrows in the ground. The Stag Beetle has two horns projecting from its head, which pinch very severely. They are sometimes very beautiful, resembling coral. The Elephant Beetle is so called from its proboscis, which is an inch and a quarter long, and terminates in two horns. Its body is four inches long, and is covered by a very hard shell. It is found in South America.

The following account of the labours of the Burying Beetle is given by M. Gleditsch, a foreign naturalist. He had "often remarked that dead moles, when laid upon the ground, especially if upon loose earth, were almost sure to disappear in the course of two or three days, often of twelve hours. To ascertain the cause, he placed a mole upon one of the beds in his garden. It had vanished by the third morning; and, on digging where it had been laid, he found it buried to the depth of three inches, and under it four beetles, which seemed to have been the agents in this singular inhumation. Not perceiving any thing particular in the mole, he buried it again; and on examining it at the end of six days, he found it swarming with maggots, apparently the issue of the beetles, which M. Gleditsch now naturally concluded had buried the carcass for the food of their future young. To determine these points more clearly, he put four of these insects into a glass vessel, half filled with earth and properly secured, and, upon the surface of the earth, two frogs. In less

than twelve hours one of the frogs was interred by two of the beetles ; the other two ran about the whole day, as if busied in measuring the dimensions of the remaining corpse, which on the third day was also found buried. He then introduced a dead linnet. A pair of the beetles were soon engaged upon the bird. They began their operations by pushing out the earth from under the body, so as to form a cavity for its reception ; and it was curious to see the efforts which the beetles made, by dragging at the feathers of the bird from below, to pull it into its grave. The male, having driven the female away, continued the work alone for five hours. He lifted up the bird, changed its place, turned it and arranged it in the grave, and from time to time came out of the hole, mounted upon it, and trod it under foot, and then retired below and pulled it down. At length, apparently wearied with this uninterrupted labour, it came forth and leaned its head upon the earth beside the bird without the smallest motion, as if to rest itself, for a full hour, when it again crept under the earth. The next day, in the morning, the bird was an inch and a half under ground, and the trench remained open the whole day, the corpse seeming as if laid out upon a bier, surrounded with a rampart of mould. In the evening it had sunk half an inch lower, and in another day the work was completed and the bird covered. M. Gleditsch continued to add other small dead animals, which were all sooner or later buried ; and the result of his experiment was, that in fifty days four beetles had interred, in the very small space of earth allotted to them, twelve carcasses : viz. four frogs, three small birds, two fishes, one mole, and two grasshoppers, besides the entrails of a fish, and two morsels of the lungs of an ox. In another experiment, a single beetle buried a mole forty times its own bulk and weight in two days."

The Dorr Clock, or Dung Beetle, uses different materials for burying along with its eggs. "It digs," to use the words of Kirby and Spence, "a deep cylindrical hole, and carrying down a mass of the dung to the bottom, in it deposits its eggs. And many of the species of the genus *Ateuchus* roll together wet dung into round pellets, deposit an egg in the midst of each, and when dry push them backwards, by their hind feet, to holes of the surprising depth of three feet, which they have previously dug for their reception, and which are often several

yards distant. The attention of these insects to their eggs is so remarkable, that it was observed in the earliest ages, and is mentioned by ancient writers, but with the addition of many fables, as that they were all of the male sex; that they became young again every year; and that they rolled the pellets containing their eggs from sunrise to sunset every day, for twenty-eight days without intermission."

"We frequently notice in our evening walks," says Mr Knapp, "the murmuring passage, and are often stricken by the heedless flight, of the great dorr-beetle (*Geotrupes Stercorarius*), clocks, as the boys call them. But this evening my attention was called to them in particular, by the constant passing of such a number as to constitute something like a little stream; and I was led to search into the object of their direct flight, as in general it is irregular and seemingly inquisitive. I soon found that they dropped on some recent nuisance: but what powers of perception must these creatures possess, drawn from all distances and directions by the very little feter which, in such a calm evening, could be diffused around, and by what inconceivable means could odours reach this beetle in such a manner as to rouse so inert an insect into action! But it is appointed one of the great scavengers of the earth, and marvellously endowed with powers of sensation, and means of effecting this purpose of its being. Exquisitely fabricated as it is to receive impressions, yet probably it is not more highly gifted than the other innumerable creatures that wing their way around us, or creep about our paths, though by this one perceptible faculty, thus 'dimly seen,' it excites our wonder and surprise. How wondrous then the whole!

"The perfect cleanliness of these creatures is a very notable circumstance, when we consider that nearly their whole lives are passed in burrowing in the earth, and removing nuisances; yet such is the admirable polish of their coating and limbs, that we very seldom find any soil adhering to them. The meloe, and some of the scarabæi, upon first emerging from their winter's retreat, are commonly found with earth clinging to them; but the removal of this is one of the first operations of the creature; and all the beetle race, the chief occupation of which is crawling about the soil, and such dirty employs, are notwithstanding remarkable for the glossiness of their covering, and

freedom from defilements of any kind. But purity of vesture seems to be a principal precept of nature, and observable throughout creation. Fishes, from the nature of the element in which they reside, can contract but little impurity. Birds are unceasingly attentive to neatness and lustration of their plumage. All the slug race, though covered with slimy matter calculated to collect extraneous things, and reptiles, are perfectly free from soil. The fur and hair of beasts, in a state of liberty and health, is never filthy, or sullied with dirt. Some birds roll themselves in dust, and, occasionally, particular beasts cover themselves with mire; but this is not from any liking or inclination for such things, but to free themselves from annoyances, or to prevent the bites of insects. Whether birds in preening, and beasts in dressing themselves, be directed by any instinctive faculty, we know not; but they evidently derive pleasure from the operation, and thus this feeling of enjoyment, even if the sole motive, becomes to them an essential source of comfort and of health."

On the cleanliness of animals, Mr Rennie in the 'Journal of the Royal Institution,' has furnished some interesting facts. The grub of the glow-worm, we learn, is provided with a "caudal instrument, consisting of rays in a circle, which can be drawn in similarly to the horns of a snail. These rays are united by a soft moist membrane. It is furnished, moreover, in the interior, with a sort of pocket, of a funnel shape, formed by the converging rays, into which was collected whatever dust or impurities were detached from the body, till it could hold no more, when, by a vermicular movement of the rays, the accumulated pellet was extruded, and placed with great care in some place where it might be out of the way of again soiling the glossy skin of the insect. This skin, if I may so call it, was of a soft, leathery appearance, exhibiting, when magnified, a minute delicate dotting, similar to shagreen; but to the naked eye this was not apparent." The above singular instrument also assists the animal to walk, and particularly to maintain a position against gravity, which its feet are ill calculated to effect. Mr Rennie has established this grub to be a carnivorous feeder; whereas De Geer, Dumeril, and Latreille, either thought its food to be vegetables, or only supposed it to be carnivorous. Mr Rennie, however, saw the grub in question thrust its head into a snail, half to the bottom of the shell, which it did not quit till it had

devoured the inhabitant. The grub cannot devour one of its victims without being soiled with slime; and accordingly after every repast, it went carefully over its head, neck, and sides, with its cleaning instrument, to free them from slime.

A second instance of this remarkable provision occurs in the fern-owl, or night-jar, popularly called the goat-sucker, from an erroneous notion that it sucks goats. The bird alluded to has the middle claw cut into serratures, like a saw, or a short-toothed comb. Wilson, the celebrated American ornithologist, describes another—the whip-poor-will: he says, “the inner edge of the middle claw is pectinated, and, from the circumstance of its being frequently found with small portions of down adhering to the teeth, is probably employed as a comb, to rid the plumage of its head of vermin, this being the principal, and almost the only part so infested in all birds.”

Mr Rennie also quotes another American bird similarly provided, and mentions the herons, which have the same advantage. Passing over these, we find more familiar illustrations in the cat and the house-fly, both of whom may frequently be seen cleaning themselves with the utmost care. “The chief instrument employed by the cat is her tongue; but when she wishes to trim the parts of her fur which she cannot reach with this, she moistens, with saliva, the soft spongy cushions of her feet, and therewith brushes her head, ears, and face, occasionally extending one or more claws to comb straight any matted hair that the foot cushion cannot bring smooth, in the same way as she uses her long tusks in the part within her reach. The chief and most efficient cleaning instrument of the cat, however, is her tongue, which is constructed somewhat after the manner of a currycomb, or rather of a woolcard, being beset with numerous horny points, bent downwards and backwards, and which serve several important purposes, such as lapping milk, and filing minute portions of meat from bones. But what falls chiefly to be noticed here, is its important use in keeping the fur smooth and clean; and cats are by no means sparing in their labour to effect this. The female cat is still more particular with her kittens than herself, and always employs a considerable portion of her time in licking their fur smooth.

“It requires the employment of a microscope of considerable power, to observe the very beautiful structure of the foot of the

two-winged flies (*muscidæ*), which still more closely resembles a currycomb than the tongue of the cat does. This structure was first minutely investigated by Sir Everard Home and Mr Bauer, in order to explain how these insects can walk upon a perpendicular glass, and can even support themselves against gravity. Of the structure of the foot of flies, considered as an instrument for cleaning, I have not hitherto met with any description in books of natural history, though most people may have remarked flies to be ever and anon brushing their feet upon one another, to rub off the dust, and equally assiduous in cleaning their eyes, head, and corslet with their fore legs, while they brush their wings with their hind legs. In the common blow-fly (*Musca carnaria*) there are two rounded combs, the inner surface of which is covered with down, to serve the double purpose of a fine brush, and to assist in forming a vacuum when the creature walks on a glass, or on the ceiling of a room. In some species of another family (*Tipulidæ*), there are three such combs on each foot. It may be remarked, that the insects in question are pretty thickly covered with hair, and the serratures of the combs are employed to free these from entanglement and from dust. Even the hairs on the legs themselves are used in a similar way; for it may be remarked, that flies not only brush with the extremities of their feet, where the curious currycombs are situated, but frequently employ a great portion of their legs in the same way, particularly for brushing one another."

The Rose or Green Chafer, which is one of our prettiest native beetles, is one of the burrowers, and for the purpose of depositing her eggs, digs, about the middle of June, into soft light ground. When she is seen at this operation, with her broad and delicate wings folded up in their shining green cases, speckled with white, it could hardly be imagined that she had but just descended from the air, or dropped down from some neighbouring rose.

The proceedings of the Tumble-Dung Beetle of America, are thus described by Catesby, in his 'Carolina.' "I have," says he, "attentively admired their industry, and mutual assisting of each other in rolling their globular balls from the place where they made them to that of their interment, which is usually the distance of some yards, more or less. 'This they perform breech foremost, by raising their hind parts, and forcing

along the ball with their hind feet. Two or three of them are sometimes engaged in trundling one ball, which, from meeting with impediments on account of the unevenness of the ground, is sometimes deserted by them. It is, however, attempted by others with success, unless it happens to roll into some deep hollow or chink, where they are constrained to leave it; but they continue their work by rolling off the next ball that comes in their way. None of them seem to know their own balls, but an equal care for the whole appears to affect all the community. They form these pellets while the dung remains moist, and leave them to harden in the sun before they attempt to roll them. In their moving of them from place to place, both they and the balls may frequently be seen tumbling about over the little eminences that are in their way. They are not, however, easily discouraged; and, by repeating their attempts, usually surmount the difficulties."

He further informs us, that they "find out their subsistence by the excellency of their noses, which direct them in their flight to newly-fallen dung, on which they immediately go to work, tempering it with a proper mixture of earth. So intent are they always upon their employment, that, though handled or otherwise interrupted, they are not to be deterred, but immediately on being freed, persist in their work without any apprehension of danger. They are said to be so exceedingly strong and active as to move about, with the greatest ease, things that are many times their own weight. Dr Brichell was supping one evening in a planter's house of North Carolina, when two of them were conveyed, without his knowledge, under the candlestick. A few blows were struck on the table, and to his great surprise, the candlesticks began to move about, apparently without any agency; and his surprise was not much lessened when, on taking one of them up, he discovered that it was only a chafer that moved."

The following fine serio-comic Address to a Beetle lately appeared in a popular periodical:—

Poor hobbling beetle, needst not haste;
Should traveller traveller thus alarm?
Pursue thy journey through the waste,
Not foot of mine shall work thee harm.

Who knows what errand grave thou hast ;
 "Small family"—that have not dined ?
 Lodged under pebble, there they fast,
 Till head of house have raised the wind.

Man's bread lies 'mong the feet of men ;
 For cark and moil sufficient cause !
 Who cannot sow would reap ;—and then
 In Beetledom are no poor laws.

And if thy wife and thou agree
 But ill, as like when short of victual,
 I swear, the public sympathy
 Thy fortune meriteth, poor beetle.

Alas, and I should do thee skaith,
 To realms of night with heeltap send !
Who judg'd thee worthy pains of death ?
 On earth, save me, without a friend !

Pass on, poor beetle, venerable
 Art thou, were wonders ne'er so rife ;
 Thou hast what Bel to Tower of Babel
 Not gave : the chief of wonders—*LIFE*.

Also of "ancient family,"
 Though small in size, of feature dark !
 What Debrett's peer surpasseth thee ?
 Thy ancestor was in Noah's ark.

THE COCOOY, QUEEN BEETLE.

This astonishing insect is about one inch and a quarter in length, and carries by her side, just about her waist, two brilliant lamps, which she lights up at pleasure with the solar phosphorus furnished her by nature. These little lamps do not flash and glimmer like that of the fire-fly, but give as steady a light as that produced by a gas burner, exhibiting two perfect spheres, as large as a minute pearl. These are so powerful, that they will afford a person light enough to read print by them. On carrying this insect into a dark closet in the day time, no light is emitted at first, but she quickly illuminates her lamps, and immediately extinguishes them on being again brought into the light. But language cannot sufficiently express the beauty and sublimity of these lucid orbs in miniature, with which nature has endowed the queen of the insect kingdom.

CONCLUDING REMARKS ON INSECTS.

THAT insects possess sensibility cannot be doubted, though the position of the poet,

———"E'en the poor beetle that we tread upon,
In mortal sufferance feels a pang as great
As when a giant dies,"

is so far from being correct, that there is good reason to believe their general sensibility to be very small. Many of them will walk about with apparent indifference after most of the entrails have been plucked from the body, or after having had a pin stuck through the breast; a humble bee will suck honey with greediness when cut in two; and if a wasp be treated in the same manner, the head will bite and the body sting for some time after their separation. This blunted sensibility seems to be owing to the imperfect organization of their nervous system, which consists chiefly of a nervous cord full of knots running through the body, and communicating by minute fibres with the organs of the senses. But several of the external senses, especially the sight and smell, are very acute in insects; and as they are very nice in the selection of their food, it is probable that their taste is not inferior in delicacy to the two senses first mentioned.

The chief organs of feeling appear to be the antennæ and the palpi, and probably the minute articulation of the former is intended the better to fit them for this important office.

With respect to the sense of taste it is not easy in insects to assign its particular seat, though in those which have a soft and flexible tongue or trunk there can be little doubt that this is the principal organ.

The acuteness in the smell of insects is proved by numerous circumstances. They discern their food at a distance; they

discover the neighbourhood of their mates even when inclosed in boxes; and the common flesh-fly lays her eggs on plants whose odour resembles that of corrupted flesh. But it is not so easy to ascertain the organs which are subservient to this sense. It is natural to suppose that they are situated somewhere about the orifice of the respiratory organs, and some have believed the mouths of the air tubes, or perhaps their internal membranes are the immediate olfactory organs. Others have imagined that this sense resides in the antennæ, but the structure of these renders the supposition highly improbable.

As to hearing, many circumstances lead us to conclude that insects are susceptible of impressions from sound; but whether these impressions are received by any peculiar auditory organ, or are merely a kind of feeling from the vibrations of the air on the surface of the body, it is not easy to determine. But as those insects called death-watches, are evidently attracted to each other in consequence of the noise they make in beating, and as bees are directed to particular spots, and invited to certain motions and actions by peculiar notes uttered within the hive, it is most probable that they have at least particular nerves for receiving these impressions. In the crustaceous insects, organs which are supposed to be those of hearing, have been demonstrated by Cuvier. They are situated on each side at the root of the feelers, and consist of a small bony tube, the outer orifice of which is covered by a firm membrane, while its internal cavity is lined with a thinner membrane, on which are expanded nervous filaments proceeding from the same branch which supplies the antennæ. This circumstance has induced some to suppose that the antennæ are subservient to hearing.

For vision, insects display an admirable structure, as most of them have either several eyes, or eyes which are composed of an amazing number of lenses. Many insects have two kinds of eyes, simple for close vision, and compound for beholding distant objects. Nothing can be more curious than the structure of these compound eyes when examined by means of a microscope. The surface exhibits an innumerable multitude of six sided facets, appearing to form as many distinct corneæ, and the back of these is covered with a dark mucous substance or pigment. Behind this are numerous white bodies equal in

numbers to that of the facets of a six sided prismatic form, and these are covered by a coloured membrane on which the optic nerve seems to be expanded. The simple eyes are found in most of the apterous insects, as also in the larvæ of many winged insects; and when these undergo the last stage of their metamorphosis and acquire wings, they gain at the same time their compound eyes.

What are commonly called the internal senses must be very imperfectly enjoyed by insects. That they possess the faculty of memory, or at least of reminiscence, cannot be doubted, as they readily return to the place of their abode, and recognise the very opening which leads to the interior of their dwelling. They even seem to possess a degree of judgment, for some of those which make excavations in the ground for the purpose of burying their prey mark the situation of the place by sticking near it a green leaf. This observation leads to a consideration of the instincts of insects, a most copious subject, which here can only be slightly touched on.

These instincts, which often eclipse the boasted reason of man, are displayed on occasions and in circumstances almost inconceivable; as in the erection of habitations to defend the insects against the injuries of the weather, and to contain food for themselves and their offspring; in the selection of food proper for their nourishment in the different stages of their existence; the artifices and contrivances by which many of them obtain that food which nature has not lavishly thrown in their way, and the patience, perseverance, and industry, which they exert in accomplishing their views. Who can contemplate without admiration the architectural labours of the bee, the wasp, the ant, the white ant, &c. the prudence and foresight exhibited by the butterfly, the gall insect, the nut-weevil, the gadfly, the ichneumon, in providing a nest for their future progeny that may supply them at once with food and shelter? Who but must admire, among such diminutive beings, the patient watchfulness of the ant-lion while waiting the approach of his prey, his ferocity in springing on it, and the caution with which he removes the remains of his repast? Other instances of this innate reason occur in the admirable economy with which the societies of insects are conducted; the precautions which they take to guard against the incursions of their enemies; the ad-

dress with which they avoid their attacks, the courage with which many of them face their opponents, though often far superior to them in size and strength; and, lastly, in the care and affection they exhibit towards their young, and the provision they make for a future progeny, which, in many cases, they are not destined to behold.

Sleep appears to be enjoyed by insects as well as by the superior classes of animated nature, though it is not easy to determine the manner in which many of them take this necessary repose.

In one of Sir John Hill's voluminous folios on Natural History, occurs a passage regarding the enjoyments of insects, which can scarcely be read without the most lively interest, and with which we shall conclude the present section of our work. It paints the tiny creatures in the most brilliant and life-enjoying light; and we are happy in being thus enabled to take leave of them under so many agreeable impressions.

"The fragrance of a carnation," he says, "led me to enjoy it frequently and near. While inhaling the powerful sweet, I heard an extremely soft, but agreeable murmuring sound. It was easy to know that some animal, within the covert, must be the musician, and that the little noise must come from some little body suited to produce it. I am furnished with apparatuses of a thousand kinds for close observation. I instantly distended the lower part of the flower, and, placing it in a full light, could discover troops of little insects frisking and capering with wild jollity among the narrow pedestals that supported its leaves, and the little threads that occupied its centre. I was not cruel enough to pull out any one of them; but adapting a microscope to take in, at one view, the whole base of the flower, I gave myself an opportunity of contemplating what they were about, and this for many days together, without giving them the least disturbance.

"Under the microscope, the base of the flower extended itself to a vast plain; the slender stems of the leaves became trunks of so many stately cedars; the threads in the middle seemed columns of massy structure, supporting at the top their several ornaments; and the narrow spaces between were enlarged into walks, parterres, and terraces.

"On the polished bottom of these, brighter than Parian mar-

ble, walked in pairs, alone, or in larger companies, the winged inhabitants : these from little dusky flies, for such only the naked eye would have shown them, were raised to glorious glittering animals, stained with living purple, and with a glossy gold that would have made all the labours of the loom contemptible in the comparison.

“ I could, at leisure, as they walked together, admire their elegant limbs, their velvet shoulders, and their silken wings ; their backs vying with the empyrean in its hue ; and their eyes each formed of a thousand others, out-glittering the little planes on a brilliant. I could observe them here singling out their favourite females, courting them with the music of their buzzing wings, with little songs formed for their little organs, leading them from walk to walk among the perfumed shades, and pointing out to their taste the drop of liquid nectar just bursting from some vein within the living trunk : here were the perfumed groves, the more than myrtle shades of the poet's fancy, realized ; here the happy lovers spent their days in joyful dalliance ;—in the triumph of their little hearts, skipped after one another from stem to stem among the painted trees ; or winged their short flight to the close shadow of some broader leaf, to revel undisturbed in the heights of all felicity.

“ Nature, the God of nature, has proportioned the period of existence of every creature to the means of its support. Duration, perhaps, is as much a comparative quality as magnitude ; and these atoms of being, as they appear to us, may have organs that lengthen minutes, to their perception, into years. In a flower destined to remain but a few days, length of life, according to our ideas, could not be given to its inhabitants ; but it may be according to theirs. I saw in the course of observation of this new world, several succeeding generations of the creatures it was peopled with : they passed, under my eye, through the several successive states of the egg and the reptile form in a few hours. After these, they burst forth at an instant into full growth and perfection in their wing-form. In this they enjoyed their span of being, as much as we do years—feasted, sported, revelled in delights ; fed on the living fragrance that poured itself out at a thousand openings at once before them ; enjoyed their loves, laid the foundation for their succeeding progeny, and after a life thus happily filled up, sunk in an easy dissolution.

With what joy in their pleasures did I attend the first and the succeeding broods through the full period of their joyful lives !
With what enthusiastic transport did I address to each of these yet happy creatures Anacreon's gratulation to the Cicada :

Blissful insect ! what can be,
In happiness, compared to thee ?
Fed with nourishment divine,
The dewy morning's sweetest wine.
Nature waits upon thee still,
And thy fragrant cup does fill.
All the fields that thou dost see,
All the plants belong to thee ;
All that summer hours produce,
Fertile made with ripening juice.
Man for thee does sow and plough,
Farmer he, and landlord thou.
Thee the hinds with gladness hear,
Prophet of the ripen'd year !
To thee alone, of all the earth,
Life is no longer than thy mirth.
Happy creature ! happy thou
Dost neither age, nor winter know ;
But when thou'st drank, and danced, and sung
Thy fill, the flowery leaves among,
Sated with the glorious feast,
Thou retir'st to endless rest.

“ While the pure contemplative mind thus almost envies what the rude observer would treat unfeelingly, it naturally shrinks into itself on the thought that there may be, in the immense chain of beings, many, though as invisible to us as we to the inhabitants of this little flower—whose organs are not made for comprehending objects larger than a mite, or more distant than a straw's breadth—to whom we may appear as much below regard as these to us.

“ With what derision should we treat those little reasoners, could we hear them arguing for the unlimited duration of the carnation, destined for the extent of their knowledge, as well as their action ! And yet among ourselves, there are reasoners who argue, on no better foundation, that the earth which we inhabit is eternal.”

WORMS.

WORMS form a class by themselves. They are distinguished from the caterpillar and maggot in undergoing no change, and crawling by means of the annular construction of their bodies. They are usually divided into five orders, viz. Tape-worms—Thread-worms—The Fury—Hair-worms—and Earth-worms.

The Common Tape-Worm.—The head of this animal is furnished with a mouth, and with an apparatus for giving it a fixed situation. The body is composed of a great number of distinct pieces articulated together, each joint having an organ, by means of which it attaches itself to the inner coat of the intestine; and as these joints are sometimes exceedingly numerous, so of course will be the different points of attachment. The joints nearest the head are always small, and they become gradually enlarged as they are further removed from it, except towards the tail, where a few of the last joints become again diminished. The body is terminated by a small semicircular joint, which has no opening. The external parts are clothed with a fine membrane-like cuticle, immediately under which is a thin layer of fibres, lying parallel to each other, and running in the direction of the length of the animal's body. In this direction all its motions are performed; from whence we may conclude that these fibres perform the office of muscles.

The food of tape-worms, requiring probably very little change before it becomes a part of their body, is taken in at the mouth, and, being thrown into the alimentary canal, is made to

visit, in a general way, every part. The central structure of the vessels placed in each joint seems calculated to absorb the fluid from the alimentary canal, for the purpose of sustaining and repairing the immediately adjacent parts: but there is in their bodies much cellular substance, into which no vessels enter. Such parts of the bodies of these animals are possibly nourished by transudation of the alimentary fluid into their cells; or this may be effected by the capillary attraction of their fibres. As they have no excretory ducts, the decayed parts of their bodies are most probably dissolved into a fluid which transudes through the skin like perspiration, and with this view the skin is extremely porous. The length of the common tape-worm is generally from three to thirty feet; but it has been known to reach sixty feet, and to be composed of several hundred joints.

When these worms produce a diseased state of body, those remedies (as drastic purges) are supposed to be the most effectual, that operate partly by irritating the external surface of their bodies, so as to make them quit their hold, and partly by violent contractions in the intestines, which may sometimes divide their bodies, or even destroy them by bruising. Electrical shocks, passed frequently through the abdomen, it is supposed might be beneficial, as the lower orders of animals are in general easily destroyed by electrical shocks.

In injecting these tape-worms with coloured size in order to preserve them, three feet in length from the head downwards has been filled by a single push with a small syringe; but the injection would not pass from below upward beyond the joint, owing, as it is supposed, to a valvular apparatus situated in the lateral canals immediately below the places where the cross canals are sent off.

The Thread-Worms.—These troublesome animals are found in the bodies of some species of quadrupeds, birds, and insects. Most of the species perforate the skin, immediately under which they lodge themselves; a few, however, have been discovered in the intestines. None of them have yet been found to infest the bodies of reptiles or fish. Their body is round, thread-shaped, and very smooth. The mouth is dilated, and has a roundish concave lip.

The Indian Thread-Worm, or Guinea-Worm, is found both

in the East and West Indies. It enters the naked feet of the slaves, and occasions very troublesome itchings and sometimes excites even fever and inflammation. It particularly attacks the muscles of the arms and legs, from whence it is only to be extracted by means of a piece of silk or thread tied round its head. But the greatest caution is necessary in this simple operation, lest the animal, by being strained too much, should break; for, if any part remains under the skin, it grows with redoubled vigour, and becomes a cruel, and sometimes a fatal enemy.

Dampier tells us that these worms are no thicker than a large brown thread, but, as he had been informed, five or six yards long. "If they break in drawing out, that part which remains in the flesh will putrefy, be very painful, and endanger the patient's life, or at least the use of the limb; and I have known some that have been scarified and cut strangely to take out the worm." He was unfortunate enough to have one of these creatures in his own ankle. "I was (he says) in great torments before it came out: my leg and ankle swelled, and looked very red and angry, and I kept a plaster to bring it to a head. At last, drawing off my plaster, out came about three inches of the worm, and my pain abated presently. Till then I was ignorant of my malady, and the gentlewoman at whose house I was took it for a nerve; but I knew enough what it was, and presently rolled it up on a small stick. After that I opened the place every morning and evening, and strained it out gently about two inches at a time, not without some pain, till at length I had got out about two feet." He afterwards had it entirely destroyed by one of the negroes, who applied to it a kind of rough powder, not unlike tobacco leaves dried and crumbled very small.

M. D'Obsonville received in his right leg the germ of one of these worms. He observed that its head was of a chesnut colour, and that to the naked eye it appeared to terminate in a small black point. On pressing it a little with a pin, and examining it with a common magnifying glass, he fancied he perceived something like a little trunk or tongue, capable of being pushed out or contracted. The body was not thicker than a strong thread; but, when the animal was extracted, it was found to be of the length of two or three ells. It appeared to be

formed of a series of small rings, united to each other by an exceedingly fine membrane, and a single intestine extended through the body. It was extracted in the usual way; and the reason he gives for the injury done by breaking these animals is, that they are full of a whitish acrimonious lymph, which immediately excites inflammation, and not unfrequently produces afterward an abscess or gangrene. The worm in his leg was twice broken, and twice occasioned an abscess. At last, at his own request, the part affected was rubbed with a preparation of mercury; and in eight or ten days the effect surpassed his hopes, for not only the body of the insect came away in suppuration, but the wound also, which was then more than three inches long, and considerably inflamed, was in this time almost entirely healed.

The Fury.—The body of the *Furia* is linear, and of equal thickness throughout. It has on each side a single row of close-pressed reflected prickles. Of this tribe only one species, the *Furia infernalis*, has been hitherto discovered. In Finland, Bothnia, and the northern provinces of Sweden, the people were often seized with an acute pain, confined to a mere point, in the face, or other exposed part of the body, which afterwards increased to a most excruciating degree, and sometimes, even within a few hours after its commencement, proved fatal. This disorder was more particularly observed in Finland, especially about marshy places, and always in autumn. At length it was discovered that the pain instantly succeeded something that dropped out of the air, and almost in a moment penetrated and buried itself in the flesh. On more accurate attention, the *furia* was detected as the cause. It is about half an inch in length, and of a carnation colour, often black at the apex. It creeps up the stalks of sedge-grass, and shrubs in the marshes, whence it is often carried off by the wind; and if the naked parts of the skin of any person happen to be directly in its course, it immediately adheres and buries itself within. The first sensation is said to be like that arising from the prick of a needle; this is succeeded by a violent itching of the part, soon after acute pain, a red spot and gangrene, at last an inflammatory fever, accompanied with swoonings. In the course of two days, at the farthest, death follows, unless the worm be extracted immediately; which is very difficult to be done. The Fin-

landers say, however, that a poultice of curds, or cheese, will allay the pain, and entice the animal out. Perhaps the most effectual method is carefully to dissect between the muscles where it had entered, and thus extract it with the knife.

Linnaeus, as he was once collecting insects, was stung by the furia in so dreadful a manner, that there was great doubt whether he would recover.

The Hair-Worms.—These animals are inhabitants chiefly of stagnant waters. Their bodies are round, thread-shaped, equal throughout, and smooth.

The common hair-worm is about the thickness of a horse's hair, and when full grown, is ten or twelve inches in length. Its skin is somewhat glossy, and of a pale yellowish white, except the head and tail, which are black. It is common in our fresh waters, and particularly in such where the bottom is composed of soft clay, through which it passes as a fish does through water. Its popular name arose from the idea that it was produced from the hair of horses and other animals that were accidentally dropped into the water; an idea that is even yet prevalent among uneducated people. Its Linnæan name of *Gordius*, originated in the habit that it has of twisting itself into such peculiar contortions as to resemble a complicated gordian knot. In this state it often continues for a considerable time, and then, slowly disengaging itself, extends its body to the full length. Sometimes it moves in the water with a tolerably quick undulating motion, like that of a leech; and at other times its motions are the most slow and languid imaginable. When the water in which it swims happens to be dried up, it soon loses every appearance of life; the slender body shrivels, and it may be kept in this state for a great length of time. But whenever it is put into water its body soon re-assumes its former appearance; in less than half an hour it begins to move, and in a few minutes more it is as brisk and active as ever it was. The Abbe Fontana kept a hair-worm in a drawer for three years, at the expiration of which it was perfectly dry and hard, and exhibited no signs of life; but, on putting it into water, it very soon recovered its former vigour. When kept in a vessel of water, it will sometimes appear motionless, and as if dead, for several hours, and afterward will resume its former vigour, and seem as healthy as before. It is a very remarkable circumstance that its bite,

which it sometimes inflicts on being taken out of the water, has been known to produce the complaint called a *whitlow*. This is mentioned by Linnæus as a popular opinion in Sweden, and it has since his time been confirmed by various other persons. This Gordius is sometimes found in the earth as well as in water, and particularly in gardens of a clayey soil, after rain.

The Earth-Worms.—The earth-worms have a round annulated body, with generally an elevated fleshy belt near the head. Most of the species are rough, with minute concealed prickles placed longitudinally, and have in the body a lateral aperture or pore.

The Dew-Worm is a species of earth-worm, and though in appearance a small and despicable link in the chain of nature, yet, if lost, might make a lamentable chasm. For, to say nothing of half the birds and some quadrupeds that are supported by worms, they seem to be the great promoters of vegetation, which would proceed but ill without them, by boring, perforating, and loosening the soil, and rendering it pervious to rains and the fibres of plants, by drawing straws and stalks of leaves and twigs into it: and, most of all, by throwing up such infinite numbers of lumps called worm-casts, which form a fine manure for grain and grass.—Worms probably provide new soil for hills and slopes where the rain washes the earth away; and they effect slopes, probably to avoid being flooded.

Gardeners and farmers express their detestation of worms; the former, because they render their walks unsightly, and make them much work; and the latter, because they think worms eat their green corn. But these men would find that the earth without worms would soon become cold, hard-bound, and void of fermentation; and consequently sterile: and besides, in favour of worms, it should be hinted that green corn, plants, and flowers, are not so much injured by them as by many species of insects in their larva or grub state; and by unnoticed myriads of those small shell-less snails, called slugs, which silently and imperceptibly make amazing havoc in the field and garden. Lands that are subject to frequent inundations are always poor: one great reason of this may probably be, because all the worms are drowned.

The dew-worm is without bones, without brain, eyes, and

feet. It has a number of breathing-holes along its back, adjoining to each ring. Near its head is placed the heart, which may be observed to beat with a very distinct motion. The body is formed of small rings furnished with a set of muscles that act in a spiral direction, and which enable it in the most complete manner possible to penetrate into or creep upon the earth. The motion of these creatures may be explained by a wire wound on a cylinder; where, when one end is drawn on and held fast, the other, upon being loosed, will immediately follow. These muscles enable them with great strength to dilate or contract their bodies. The annuli or rings are also each armed with small, stiff, and sharp beards, or prickles, which they have the power of opening or closing to their body. And under the skin is secreted a slimy matter, which they emit at the perforations between the annuli to lubricate the body, and facilitate their passage into the ground. By all which means they are enabled with great ease to perforate the earth; which, had their bodies been otherwise constructed, they could not so well have done.

Dew-worms make their casts principally about the months of March or April, in mild weather.—In rainy nights they travel about, as appears from their sinuous tracks, on a soft muddy soil, perhaps in search of food. When they appear at night on the turf, although they considerably extend their bodies, they do not quite leave their holes, but keep their tails firmly fixed, so that, on the least alarm, they can precipitately retire under the earth. Whatever food falls within their reach, when thus extended, such as blades of grass, or fallen leaves, they seem content with it.

Helpless as they may seem, these creatures are very vigilant in avoiding such animals as prey upon them. The mole, in particular, they avoid, by darting to the surface of the earth the instant they feel the ground move. Fishermen, who are acquainted with this circumstance, can take them in great numbers, by moving the earth in places where they expect to find them, with a dung fork. When, however, they are wanted for fishing, they are perhaps most easily caught by the light of a lantern in the night, after heavy showers, on grass walks and sheep pastures, where the herbage is short. In winter these worms retire very deep into the earth, to secure

themselves from being frozen. They do not become torpid during this season, for in the intervals of mild weather they are often observed to throw up their casts, as usual at other times of the year.

ZOOPHYTES.

THOUGH Zoophytes belong to the Linnean order of vermes or worms, we limit the term here to its most popular acceptation, namely, to those creatures which seem to form a connecting link between animal and vegetable life—to polypes, or simple radiated water animals, either free or attached to a stem, including among others the numerous corals, corallines, madrepores, millepores, and sponges.

The *Coral* is a marine zoophyte, that becomes, after removal from the water, as hard as a stone, of a fine red colour, and will take a good polish. It is used by gem sculptors for small ornaments. Throughout the whole Pacific ocean, the greater part of the islands and the reefs by which the shores are surrounded, appear to owe their existence to the labours of this little animal; and it is truly astonishing to reflect upon the immense fabrics that are reared in the midst of the fathomless ocean by a creature so apparently insignificant. The coast of New Holland is girt round on the eastern part with reefs and islands of coral, rising like a wall from depths in which no bottom can be found. In the West Indies, and all over the Atlantic, though large masses and fragments of the coralline are met with, it is remarkable that no island of this substance has yet been discovered. Coral islands are usually covered with a luxuriant vegetation as soon as they emerge from the surface, whereas those which owe their origin to subterraneous fire, are often centuries before they acquire any verdure.

Sponges consist of an entirely ramified mass of capillary tubes, supposed by many to be the production of a species of worms which are often found straying about their cavities. This idea is now, however, nearly exploded. Others have imagined them mere vegetables. But that they are possessed of a living principle seems evident from the circumstance of their alternately contracting and dilating their pores, and shrinking in some degree from the touch whenever examined in their native waters. From their structure they are capable of absorbing nutriment from the fluid in which they are by nature immersed. They are the most torpid of all the zoophytes. The species differ very greatly from each other both in shape and structure. Some are composed of reticulated fibres or masses of small spines; some, as the Common or Official Sponge, are of no regular shape; others are cup-shaped, others tubular, &c.

The *Official Sponge* is elastic, and very full of holes: it grows into irregular lobes of a woolly consistence, and generally adheres, by a very broad base, to the rocks. It is chiefly found about the islands in the Mediterranean sea, where it forms a considerable article of commerce. A variety of small marine animals pierce and gnaw into its irregular winding cavities. These appear on the outside, by large holes, raised higher than the rest. When it is cut perpendicularly, the interior parts are seen to consist of small tubes, which divide into branches as they appear on the surface. These tubes, which are composed of reticulated fibres, extend themselves every way, by this means increasing the surface of the sponge, and ending at the outside in an infinite number of small circular holes, which are the proper mouths of the animal. Each of these holes is surrounded by a few erect pointed fibres, that appear as if woven in the form of little spines. These tubes, with their ramifications, in the living state of the sponge, are clothed with a gelatinous substance, properly called the flesh of the animal. When the sponge is first taken it has a strong fishy smell, and the fishermen take great care to wash it perfectly clean, in order to prevent its growing putrid.

Polypes are gelatinous animals, consisting of a long tubular body, fixed at the base, and surrounded at the mouth

by arms or tentacula. They are chiefly inhabitants of fresh waters, and are among the most wonderful productions of nature. The particulars of their life, their mode of propagation, and powers of reproduction, after being cut to pieces, are truly astonishing to a reflecting mind. Long after experiments had been made did scepticism involve the philosophic world; and the history of the animals did not obtain complete credit till these had not only been often repeated, but varied in every possible manner: they at length, however, incontestably proved the truth of the surprising and apparently impossible properties.

See with new life the wond'rous worm abound,
Rich from its loss, and fruitful from its wound!

The *Green Polype*, a species that will fully illustrate the nature of the whole tribe, is found in clear waters, and may generally be seen in great plenty in small ditches and trenches of fields, especially in the months of April and May. It affixes itself to the under parts of leaves, and to the stalks of such vegetables as happen to grow immersed in the same water. The animal consists of a long tubular body, the head of which is furnished with eight, and sometimes ten long arms, or tentacula, that surround the mouth. It is capable of contracting its body in a very sudden manner when disturbed, so as to appear only like a roundish green spot; and when the danger is over, it again extends itself as before.

It is of an extremely predacious nature, and feeds on the various species of small worms, and other water animals that happen to approach. When any animal of this kind passes near the Polype, it suddenly catches it with its arms, and dragging it to its mouth, swallows it by degrees, much in the same manner as a snake swallows a frog. Two of them may sometimes be seen in the act of seizing the same worm at different ends, and dragging it in opposite directions with great force. It often happens that, while one is swallowing its respective end, the other is also employed in the same manner; and thus they continue swallowing each his part, until their mouths meet together: they then rest each for some time in this situation, till the worm breaks between them, and each goes off with his share. But it often happens that a seemingly more dangerous

combat ensues, when the mouths of both are thus joined together upon one common prey: the largest Polype then gapes and swallows his antagonist; but, what is most wonderful, the animal thus swallowed seems to be rather a gainer by the misfortune. After it has lain in the conqueror's body for about an hour it issues unhurt, and often in possession of the prey that had been the original cause of contention. The remains of the animals on which the Polype feeds are evacuated at the mouth, the only opening in the body. It is capable of swallowing a worm of thrice its own size: this circumstance, though it may appear incredible, is easily understood, when we consider that the body of the Polype is extremely extensile, and is dilated on such occasions to a surprising degree.

This species are multiplied for the most part by vegetation, one or two, or even more young ones, emerging gradually from the sides of the parent animal; and these young are frequently again prolific before they drop off: so that it is no uncommon thing to see two or three generations at once on the same Polype.

But the most astonishing particular respecting this animal is, that if the Polype be cut in pieces it is not destroyed, but is multiplied by dissection: it is literally

Rich from its loss, and fruitful from its wound.

It may be cut in every direction that fancy may suggest, and even into very minute divisions, and not only the parent stock will remain uninjured, but every section will become a perfect animal. Even when turned inside-out it suffers no material injury; for, in this state, it will soon begin to take food, and to perform all its other natural functions.

Leuwenhoek was the first who discovered this animal, toward the end of the seventeenth century; but M. Trembley, of Geneva, made, in the year 1740, the first experiments that proved decisively its properties. In the course of his experiments, he found that different portions of one Polype could be ingrafted on another. Two transverse sections brought into contact will quickly unite, and form one animal, though each section belong to a different species. The head of one species may be ingrafted on the body of another. When one Polype is introduced by

the tail into another's body, the two heads unite, and form one individual. Pursuing these strange operations, M. Trembley gave scope to his fancy, and, by repeatedly splitting the head and part of the body, formed hydras more complicated than ever struck the imagination of the most romantic fabulists.

These creatures continue active during the greater part of the year, and it is only when the cold is most intense that they feel the general torpor of nature. All their faculties are then for two or three months suspended; but if they abstain at one time, they have ample amends in their voracity at another; and, like all those animals that become torpid in winter, the meal of one day suffices for several months.

ANIMALCULÆ.

THE Animalculæ or Infusoria constitute the last of the Linnæan order of worms. They are very simple in their form, and generally invisible without a magnifying power. They are chiefly found in infusions of animal and vegetable substances. The different kinds of animalculæ are very numerous. We can only notice two of the more curious genera; namely, *Vorticella*, and *Vibrio*.

The *Vorticella*, or wheel animals, are remarkable in their structure, their habits, and production. In general form they bear a great affinity to the *Polypes*, having a contractile naked body, furnished with rotatory organs round the mouth; and indeed many microscopical writers have denominated them *Cluster-polypes*. They are very small, and generally found in clear stagnant waters during the summer months, attached to the stalks of the lesser water plants, where they feed on animalcules still smaller than themselves. Many of the species are found in groups, sometimes formed by the mere approximation of several individuals, and at other times by the ramified or aggregate manner in which they grow. Their various motions, like those of the *Polypes*, are generally exerted only for the purpose of obtaining prey, the rotatory motion of their tentacula causing an eddy in the water around each individual sufficient to attract into its vortex such animalcules as happen to swim near: these the little creature seizes by suddenly contracting its tentacula and inclosing them in the midst. The stems of several of the species, into which they occasionally withdraw themselves are somewhat rigid or scaly. The young are carried in oval integuments on the outside of the lower part of these; and, when

ready to come forth, the parents aid their extrusion, where such is necessary, by writhing their bodies, or striking the little vesicle. As soon as the young one is liberated from its prison it fixes itself, and commences the necessary operations to procure its food.

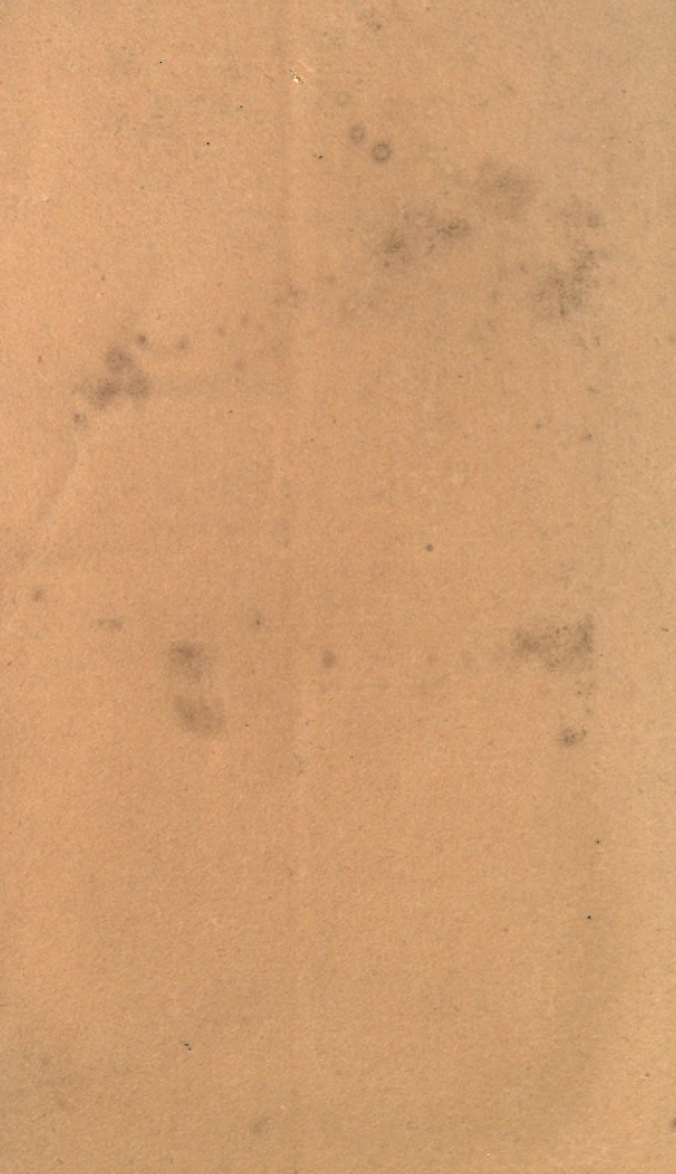
The animals of the genus *Vibrio* are very simple, round and elongated worms, nearly all invisible to the naked eye. The species best known is the *Eel Vibrio*, which is found in sour paste, and in most sediments from an infusion of grain. Its body is pellucid, and tapers toward both ends. The general resemblance that it bears to an Eel has almost universally led microscopical writers to distinguish it by that title, though its most gigantic individuals are seldom a tenth of an inch in length. When paste becomes sour, if examined with a glass it will be seen to contain multitudes of these animalcules, moving about with great strength and rapidity in every direction. And animals very similar in appearance are also frequently to be observed in vinegar. They are viviparous, and produce, at intervals, a numerous progeny. If one of them be cut through the middle, several young ones coiled up and inclosed each in a membrane, will be seen to issue from the wound. Upwards of a hundred young have been remarked to proceed from a single parent; which readily accounts for their sudden and prodigious increase.—The *Proteus Vibrio* is a species that has its name from its very singular power of assuming different shapes, so as sometimes with difficulty to be distinguished for the same animal. When water, in which any vegetable has been infused, or in which any animal substance is preserved, has stood undisturbed for some days, a slimy substance will be found on the sides of the vessel, some of which, if viewed in a microscope, will be found to contain, among several other animalcules, the *Proteus*. It is pellucid and gelatinous, and swims about, most commonly, with a long neck and bulbous body, with great vivacity. Sometimes it makes a stop for a minute or two, and stretches itself out apparently in search of prey.—When alarmed it immediately draws in its neck, becomes more opaque, and moves very sluggishly. It will then, perhaps, instead of its former long neck, push out a kind of wheel machinery, the motions of which draw a current of water, and, along with this, probably its prey. Withdrawing this it will sometimes remain

almost motionless for some seconds, as if weary ; then protruding its long neck, will often resume its former agility, or instead, adopt in succession a multitude of different appearances. The eyes of this creature have not hitherto been discovered ; it however swims with great rapidity among the multitudes of animalcules that inhabit the same water, without striking against them.

THE END.







UC SOUTHERN REGIONAL LIBRARY FACILITY



A 000 047 981 6

